

# 2023 - 2024 HS VIRTUAL CHALLENGE MEET #4



# ACCOUNTING

DO NOT OPEN TEST UNTIL TOLD TO DO SO

The Virtual Challenge Meets TM

**GROUP 1:** The adjusted trial balance columns of the work sheet of Raspberry Services Co. (a service business) for the year ended December 31, 2023 revealed the following information:

Total Assets	\$74,285
Total Liabilities	16,840
Owner's capital account balance	?
Owner's withdrawals	6,000
Total Revenue	95,210
Total Expenses	76,490

The general ledger also revealed that the owner made two investments in the business during 2023 as follows:

July 18, 2023	\$15,000
September 14, 2023	8,000

The only adjustment on the worksheet showed \$200 of supplies had been used. Raspberry Services Co. uses the standard order for closing entries at the end of the fiscal year.

For questions 1 through 10, write **T** if the statement is true; write **F** if it is false.

- 1. The balance in the capital account on December 31, 2022 was \$21,725.
- 2. The first closing entry would include a credit to the Income Summary account totaling \$95,210.
- 3. The second closing entry would include a credit to Income Summary of \$76,490.
- 4. The third closing entry would include a credit to the drawing account for a total of \$23,000.
- 5. If Raspberry Services Co. does not use a separate financial statement that reports the changes in owner's equity from the beginning of the year to the end of the year, then this information could be presented in the owner's equity section of the balance sheet dated December 31, 2023.
- 6. The net loss for the year 2023 was \$18,720.
- 7. The total of the debit column of the Balance Sheet of the Worksheet before net income or net loss was calculated was \$74,285.
- 8. The total of the credit column of the Income Statement column of the Worksheet after net income or net loss was calculated was \$95,210.
- 9. The balancing total of the Trial Balance Columns of the worksheet was \$156,775.
- 10. The balance of the capital account on the post-closing trial balance dated December 31, 2023 was \$55,725.

**GROUP 2:** At the beginning of the fiscal year, Pineapple Company's liabilities were \$32,860. During the year, assets decreased by \$6,750. At the end of the year, assets totaled \$133,870. Liabilities increased by \$4,270 during the year. The owner made withdrawals of \$1,250 each quarter, and invested \$1,000 in the business during March and August. The fiscal year is the same as the calendar year.

For questions 11 through 13, write the correct amount on your answer sheet.

- 11. What was the owner's capital balance on the Balance Sheet of the worksheet?
- 12. What was the total owner's equity on the Post-Closing Trial Balance?
- 13. What was the net income or <net loss> for the year?

**GROUP 3:** Table 1 on page 7 shows the Employee Earnings Record of Mary Peach employed by Blueberry Co. All the information presented is correct. The missing information can be determined from the data given. Round all answers to the nearest cent. Use your time wisely because not all missing information may be required for answers. Blueberry's payroll policies and other information are also shown in Table 1.

For questions 14 and 15, write the correct number of hours on your answer sheet.

- 14. How many overtime hours did Mary work on May 19?
- 15. How many overtime hours did Mary work during April?

For questions 16 and 17, write the amounts on your answer sheet.

- 16. What was Mary's standard rate of pay per hour?
- 17. What was Mary's standard overtime rate of pay per hour?

For questions 18 and 19, consider Mary's earnings and write the amounts on your answer sheet.

- 18. What is Mary's gross earnings for the week of April 28?
- 19. What is Mary's net pay for the week of May 26?

For questions 20 - 25, consider Mary's earnings in Table 1 and write the amounts on your answer sheet.

- \* 20. For the first quarter only, what amount of employee tax withholdings and employer payroll taxes did Blueberry Co. owe to the IRS that would have been reported on Form 941?
  - 21. What amount of federal unemployment tax is owed just for the week ending Apr. 28?
- \* 22. What amount of gross earnings for the week ending May 12 is taxable for SUTA.
  - 23. How much of Mary's earnings were taxable for FUTA for the week of April 28?
  - 24. What was Mary's take-home pay for the week of May 12?
- \* 25. What amount did Blueberry Co. owe for SUTA for the week of May 12?

**GROUP 4:** The following information (arranged in alphabetical order) is based on the Adjusted Trial Balance of a worksheet. Use this information to answer questions 26 through 35 by writing the correct amount or percentage on your answer sheet. All accounts have normal balances.

Combined Expenses	22,650
Cost of delivered merchandise	74,207
Cost of merchandise available for sale	100,435
Gross profit	40%
Net purchases	68,625
Net sales	116,700
Purchases	?
Purchases discounts	?
Purchases returns and allowances	3,105
Sales	124,860
Sales discounts	?
Sales returns and allowances	4,290
Transportation in	3,605

26. What is the amount of inventory from last year's post-closing trial balance?

- \* 27. What was the net increase or <net decrease> in merchandise inventory?
  - 28. What is the amount of purchases?
  - 29. What is the amount of purchases discounts?
  - 30. What is the amount of sales discounts?
  - 31. What is the amount of cost of merchandise sold?
  - 32. What is the amount of Merchandise Inventory that the company had on hand to sell this year?
  - 33. Was the adjustment to Income Summary on the worksheet a debit (DR) or a credit (CR)?
  - 34. What is the amount of Gross Profit?
- \* 35. What is the Cost of Goods Sold percentage (0 decimals)?

**GROUP 5:** Listed in items 36 – 45 are the names of various businesses. For each one, decide what type of business best describes its primary type of business by writing the letter code from below:

	<u>A</u> Service <u>B</u>	Merchandising <u>C</u> Manufacturing
36.	James Dean, Veterinarian	41. Target
37.	Joy's Daycare	42. Princess Cruiselines
38.	WalMart	43. Dollar General Store
39.	Kraft Foods	44. Treehugger Plants & Nursery

40. Tri-State Insurance Co.

45. Little Debbie's Snack Cakes

**GROUP 6:** The following data comes from the accounting records of Huckleber ry Land & Cattle Company. For questions 46 – 52, write the amounts on your answer sheet.

	2022	2023
January 1:		
Assets	?	?
Liabilities	10,230	?
December 31: (Post-Closing)		
Assets	83,560	?
Liabilities	12,415	12,200
During 2022:		
Owner Investments	15,000	
Net Income <loss></loss>	24,275	
Owner Withdrawals	5,000	
During 2023:		
Owner Investments		30,000
Net Income <loss></loss>		<2,870>
Owner Withdrawals		4,000

46. On the Post-Closing Trial Balance FYE 12/31/21, what is the amount of Capital?

47. On the Post-Closing Trial Balance FYE 12/31/21, what is the amount of Assets?

- \* 48. On the Balance Sheet Columns of the Worksheet FYE 12/31/22, what is the amount of Capital?
  - 49. In the Adjustment Columns of the Worksheet FYI 12/31/23, what amount is in the drawing account?
  - 50. After closing entries on 12/31/22, what is the account of Capital?
  - 51. On the Balance Sheet Columns of the Worksheet FYE 12/31/23, what is the amount of Capital?
  - 52. What will the balance in the capital account be on 1/1/24?

**GROUP 7:** On December 1, 2023, Jack Apple, owner of Apple Realty, received a bank statement for the month of November, 2023 showing a beginning balance of \$6,449.20 and an ending balance of \$5,369.14. Necessary adjustments are made after reconciliation. Use the codes below to indicate how Jack should handle each of the items listed in questions 53 – 59.

Α	Deducted from the checkbook
В	Deducted from the bank statement
С	Added to the checkbook
D	Added to the bank statement

- 53. The bank statement showed a service charge of \$12.50.
- 54. A deposit in the amount of \$4,910 did not appear on the bank statement.
- 55. A \$473 check deposited last month from a customer was returned with the bank statement marked NSF.
- 56. The bank statement showed a charge of \$20.00 to handle the NSF check.
- 57. Checks written but not shown on the bank statement totaled \$2,994.45.
- 58. A customer's payment in the amount of \$455 was recorded on the check stub register as \$450 but cleared the bank in the correct amount.
- 59. Debit transactions totaling \$12.00 was not recorded in the check register.

Continue to consider all of the information for Jack's bank reconciliation and write the amount for question #60 on your answer sheet.

60. What was the balance in the checkbook register prior to reconciliation?

**GROUP 8:** The following T-account summarizes the activity for calendar year 2023 for a service business organized as a sole proprietorship. For questions 61 through 65, on your answer sheet write **Y** if the answer to the question is yes; write **N** if the answer is no.

61.	Will \$28,000 appear in the Trial Balance columns of the worksheet?	Capital		
			28,000	
62.	Will the amount shown in the Balance Sheet column of the worksheet will be		18,000	
	\$53,000?			
$(\mathbf{a})$		15000	22,000	
63.	Did the owner invest \$22,000 in the business during 2023?			
	-			

- 64. Based solely on the information shown in the T-account, can it be assumed that the owner withdrew only cash during the year?
- 65. Is the net change in owner's equity during 2023 \$25,000?

**GROUP 9:** Refer to Table 2 on page 8. For questions 66 through 80, write the correct amount on your answer sheet.

#### What is the January 1, 2023 account balance of ...

- 66. Supplies 68. Jenna Bash, Capital
- 67. Prepaid Insurance \* 69. Jenna Bash, Drawing

#### On the work sheet in the Adjusted Trial Balance columns, what is the amount of...

- 70. Supplies Expense 72. Jena Bash, Drawing
- 71. Insurance Expense \* 73. Total Assets

#### On the Income Statement for the year ended December 31, 2023, what is the correct amount of...

- 74. Cost of Merchandise Sold
- 75. Cost of Merchandise Available for Sale
- 76. Merchandise Inventory 12/31/23
- 77. Gross Profit
- 78. Gross Profit Percentage (0 decimals)
- \* 79. Total Expenses
- \* 80. Net Income

#### END OF TEST

#### Table 1

(For use with Group 3 questions 14 through 25)

Blueberry Co.'s payroll policies and other information:

Payroll Period	Weekly			
Standard Work Week	40 hours			
Overtime Pay	Time and a half for hours over standard			
Social Security Pate (employer and employee)	6.2% on gross earnings up to \$94,200 per			
Social Security Rate (employee and employee)	employee			
Medicare Rate	1.45% on all gross wages			
FUTA (federal unemployment tax paid by	.8% on first \$7,000 gross earnings per			
employer only)	employee			
SUTA (state unemployment tax paid by	2.4% on first \$9,000 gross earnings per			
employer only)	employee			
Mary Beach's standard rate of pay	\$ <u>?</u> per hour			

Week Ending	Standard Hours	OT Hours	Gross Earnings	Social Security Tax	Medicare Tax	Federal Income Tax	Net Pay
1 <sup>st</sup> Qtr.			3,740.00	231.88	54.23	380.00	3,073.89
Apr 7	40		920.00	57.04	13.34	95.00	754.62
14	40				14.21	100.00	805.03
21	40	0	800.00	49.60	11.60	80.00	658.80
28	40			64.48		110.00	850.44
May 5	40			49.60	11.60	80.00	
12	40		1,100.00			110.00	
19	40		1,160.00	71.92	16.82	120.00	951.26
26	40		860.00			90.00	

#### Table 2

(For use with Group 9 questions 66 through 80)

Bashberry Company, owned by Jenna Bash, has the following unadjusted and adjusted trial balances as of December 31, 2023.

	Unadj	usted	Adjusted		
	Trial B	alance	Trial Ba	alance	
	Debit	Credit	Debit	Credit	
Cash in Bank	2,480		2,480		
Accounts Receivable	4,175		4,175		
Merchandise Inventory	21,250				
Supplies	8,705		4,180		
Prepaid Insurance	4,080		1,040		
Equipment	29,830		29,830		
Accounts Payable		2,690		2,690	
Sales Tax Payable		680		680	
Jenna Bash, Capital					
Jenna Bash, Drawing	20,000				
Income Summary				1,430	
Sales		98,400		98,400	
Purchases	59,486		59,486		
Rent Expense	5,520		5,520		
Utilities Expense	2,558		2,558		
Advertising Expense	960		960		
Supplies Expense					
Insurance Expense					
Subtotals					

#### Company Policies:

- The temporary capital accounts are closed only at the end of the fiscal year, which is 12/31/23.
- The first two steps (there are four steps) of the closing process include:
  - 1. close all revenue accounts in one combined entry
  - 2. close all expense and cost of merchandise accounts in one combined entry

#### Information Found in the General Ledger:

- Jenna transferred \$8,000 from her savings account to her business bank account on 3/6/23.
- Supplies purchased throughout the year 2023 totaled \$4,955
- The only insurance premium paid during 2023 was on May 1 for \$3,120, which was a 12-mo policy

Name	
Grade Level	

#### 2023 - 2024 HS Virtual Challenge Meet #4 Accounting Answer Sheet

		Group 1	1 1		Group 4		Group 6			Group 8
	1			26	\$	46	\$		61	
	2		*	27	\$	47	\$		62	
	3		-	28	\$	* 48	\$		63	
	4		-	29	\$	49	\$		64	
:	5			30	\$	50	\$		65	
	6			31	\$	51	\$			
	7			32	\$	52	\$			
	8			33		-				Group 9
	9		*	34	\$	-			66	\$
1	0		-	35	%		Group 7		67	\$
						53			68	\$
						54			* 69	\$
		Group 2	] [		Group 5	55				
1	1	\$	-	36		56			70	\$
1	2	\$		37		57			71	\$
1	3	\$	-	38		58			72	\$
			-	39		59			* 73	\$
			_	40						
		Group 3		41		60	\$		74	\$
1	4		Hours	42		-			75	\$
1	5		Hours	43					76	\$
				44					77	\$
1	6	\$	_	45					78	%
1	7	\$				-			* 79	\$
			_						* 80	\$
1	8	\$	_							
1	9	\$								
					Correct answer	s	* 5	=		-
* 2	20	\$	-		<b>Bonus Points</b>	(10 possible	)	+		-
2	21	\$	-			Total Sco	re			=
* 2	22	\$	-							
2	23	\$	-							
2	24	\$								

\* 25 \$

#### 2023 - 2024 HS Virtual Challenge Meet #4 Accounting Answer Key

Group 1				
1	Т			
2	Т			
3	F			
4	F			
5	Т			
6	F			
7	F			
8	Т			
9	Т			
10	F			

_					
	Group 4				
	26	\$	31,810		
*	27	\$	(1,395)		
	28	\$	70,602		
	29	\$	2,477		
	30	\$	3,870		
	31	\$	70,020		
	32	\$	100,435		
	33		DR		
	34	\$	46,680		
*	35		60%		

Group 6					
46	\$	36,870			
47	\$	47,100			
48	\$	51,870			
49	\$	0			
50	\$	71,145			
51	\$	101,145			
52	\$	94,275			

Group 7

А D

А

А В

С

А

7,797.19

53

54

55

56

57

58 59

60

\$

Group 8				
61	Ν			
62	Ν			
63	Ν			
64	Ν			
65	Y			

	UI	oup 🤊
66	\$	3,750
67	\$	960
68	\$	49,274
69	\$	0 or zero
70	\$	4,525
71	\$	3,040
72	\$	20,000
73	\$	64,385
74	\$	58,056
75	\$	80,736
76	\$	22,680
77	\$	40,344
78		41%
79	\$	16,603
80	\$	23,741
	<ul> <li>66</li> <li>67</li> <li>68</li> <li>69</li> <li>70</li> <li>71</li> <li>72</li> <li>73</li> <li>74</li> <li>75</li> <li>76</li> <li>77</li> <li>78</li> <li>79</li> <li>80</li> </ul>	66       \$         67       \$         68       \$         69       \$         70       \$         71       \$         72       \$         73       \$         74       \$         75       \$         76       \$         77       \$         78       \$         79       \$         80       \$

Group 2				
11	\$	109,760		
12	\$	96,740		
13	\$	(8,020)		

Γ		Group 3	
	14		12 Hours
	15		18 Hours
	16	\$ 20.	.00
	17	\$ 30.	.00
	18	\$ 1,040.	.00
	19	\$ 704.	.21
*	20	\$ 952.	.22
	21	\$ 4.	.48
*	22	\$ 720.	.00
	23	\$ 560.	.00
	24	\$ 905.	.85
*	25	\$ 17.	.28

Group 5				
36	А			
37	А			
38	В			
39	С			
40	А			
41	В			
42	А			
43	В			
44	В			
45	С			

Correct answers		* 5
Bonus Points	(10 possible)	
	<b>Total Score</b>	

	* 5	
possible)		
otal Score		

Name		Grade Lev	el		1
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	1. Examples ( Correct: Incorrect:	means correct but no 12.3, 123, 123.*, 1.23x10 <sup>01</sup> , .0190, 12.30, 123.0, 1.23 1.23*10 <sup>2</sup> , 0.19, 1.	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10	$x10^{0*} 1.23x10^{1},$ $y^{-2}$ $y^{-3}, 1.230x10^{2},$ $y^{-3}, 1.90E-02$	
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	<ol> <li>Examples ( Correct: Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated point</li> <li>Except for detailed both three sign</li> </ol>	<pre>means correct but no 12.3, 123, 123.*, 1.23x10<sup>01</sup>, .0190, 12.30, 123.0, 1.23 1.23*10<sup>2</sup>, 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state figent digits</pre>	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 the third significa and significa	x10 <sup>0*</sup> 1.23x10 <sup>1</sup> , <sub>0</sub> -2 <sup>2</sup> , 1.230x10 <sup>2</sup> , ) <sup>-3</sup> , 1.90E-02 nificant digit i nt digit problem uld be written w	s s, as ith
	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or ministree</li> <li>For stated particular</li> <li>For stated particular</li> <li>Except for detailed be three sign</li> <li>Integer pro-</li> </ol>	<pre>means correct but no 12.3, 123, 123.*, 1.23x10<sup>01</sup>, .0190, 12.30, 123.0, 1.23 1.23*10<sup>2</sup>, 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated b</pre>	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 the third sign and significa ed problems sho	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan</pre>	s s, as ith k.
	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated point</li> <li>Except for detailed booth three sign</li> <li>Integer pro- Integer pro- Integer pro-</li> </ol>	<pre>means correct but no 12.3, 123, 123.*, 1.23x10<sup>01</sup>, .0190, 12.30, 123.0, 1.23 1.23*10<sup>2</sup>, 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be</pre>	ot recommended) $1.23 \times 10^{*}$ , $1.23 \times 10^{2}$ $0.0190$ , $1.90 \times 10^{2}$ $(10)^{2}$ , $1.23 \cdot 10^{2}$ $9 \times 10^{-2}$ , $19.0 \times 10^{2}$ and significate and significate of problems sho py (integer) in a exact, no plue	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d</pre>	s s, as ith k. igit,
	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated particular for detailed bathree sign.</li> <li>Integer pro- Integer pro- no decimal</li> </ol>	<pre>means correct but no 12.3, 123, 123.*, 1.23x10<sup>01</sup>, .0190, 12.30, 123.0, 1.23 1.23*10<sup>2</sup>, 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r</pre>	ot recommended) $1.23 \times 10^{*}$ , $1.23 \times 10^{2}$ $0.0190$ , $1.90 \times 10^{2}$ $(10)^{2}$ , $1.23 \cdot 10^{2}$ $9 \times 10^{-2}$ , $19.0 \times 10^{2}$ and significate and significate of problems shows by (integer) in the exact, no plue totation.	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d</pre>	s s, as ith k. igit,
	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated particular</li> <li>Except for detailed be three sign.</li> <li>Integer pro- no decimal</li> <li>Dollar sign</li> </ol>	<pre>means correct but no 12.3, 123, 123.*, 1.23x10<sup>01</sup>, .0190, 12.30, 123.0, 1.23 1.23*10<sup>2</sup>, 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should</pre>	ot recommended) $1.23 \times 10^{*}$ , $1.23 \times 10^{2}$ $0.0190$ , $1.90 \times 10^{2}$ $(10)^{2}$ , $1.23 \cdot 10^{2}$ $9 \times 10^{-2}$ , $19.0 \times 10^{2}$ and significa and significa ed problems sho by (integer) in e exact, no plu totation. be answered to	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y<sup>-2</sup> 2, 1.230x10<sup>2</sup>, y<sup>-3</sup>, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent,</pre>	s s, as ith k. igit, but
	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or ministry</li> <li>permitted.</li> <li>For stated print</li> <li>Except for detailed be three sign.</li> <li>Integer print</li> <li>Integer print</li> <li>no decimal</li> <li>Dollar sign</li> <li>plus or ministry</li> </ol>	<pre>means correct but no 12.3, 123, 123.*, 1.23x10<sup>01</sup>, .0190, 12.30, 123.0, 1.23 1.23*10<sup>2</sup>, 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is</pre>	ot recommended) $1.23 \times 10^{*}$ , $1.23 \times 10^{2}$ $0.0190$ , $1.90 \times 10^{2}$ $(10)^{2}$ , $1.23 \cdot 10^{2}$ $9 \times 10^{-2}$ , $19.0 \times 10^{2}$ and signification and signification showed the third signification. by (integer) in the exact, no plue to the topermitted. The third signification is the second s	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point</pre>	s s, as ith k. igit, but and
	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated point</li> <li>Except for detailed both three sign</li> <li>Integer pro- integer pro- no decimal</li> <li>Dollar sign plus or mini- cents are sign</li> </ol>	<pre>means correct but no 12.3, 123, 123.*, 1.23x10<sup>01</sup>, .0190, 12.30, 123.0, 1.23 1.23*10<sup>2</sup>, 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is equired for exact-dol</pre>	ot recommended) $1.23 \times 10^{*}$ , $1.23 \times 10^{2}$ , $1.23 \times 10^{2}$ , $1.23 \times 10^{2}$ $(10)^{2}$ , $1.23 \cdot 10^{2}$ $9 \times 10^{-2}$ , $19.0 \times 10^{2}$ and significated and significated of problems showed by (integer) in the exact, no plue $100 \times 10^{10}$ cm mitted. The lar answers.	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point</pre>	s s, as ith k. igit, but and
	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated per 1. Except for detailed be three sign.</li> <li>Integer pre Integer pre no decimal</li> <li>Dollar sign plus or min cents are</li> <li>Significant</li> </ol>	means correct but no 12.3, 123, 123.*, 1.23x10 <sup>01</sup> , .0190, 12.30, 123.0, 1.23 1.23*10 <sup>2</sup> , 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is equired for exact-dol digit problems are i	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 and significa and significa ed problems sho by (integer) in e exact, no plu totation. be answered to permitted. Th lar answers. Indicated by un	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point derlined numbers</pre>	s s, as ith k. igit, but and and
	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated particle</li> <li>For stated particle</li> <li>Except for detailed ba three sign</li> <li>Integer pro- no decimal</li> <li>Dollar sign plus or min cents are</li> <li>Significant by (SD) in</li> </ol>	means correct but no 12.3, 123, 123.*, 1.23x10 <sup>01</sup> , .0190, 12.30, 123.0, 1.23 1.23*10 <sup>2</sup> , 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is equired for exact-dol digit problems are i the answer blank. Se	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 and significated and significated by (integer) in the third significated by (integer) in the exact, no plue totation. be answered to permitted. Th lar answers. Indicated by un- the UIL Conservation	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, )<sup>-2</sup> 2, 1.230x10<sup>2</sup>, )<sup>-3</sup>, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point derlined numbers titution and Con</pre>	s s, as ith k. igit, but and test
TTT	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or ministic permitted.</li> <li>For stated permitted.</li> <li>For stated permitted.</li> <li>For stated permitted.</li> <li>Except for detailed be three sign.</li> <li>Integer present of the permitted.</li> <li>Dollar sign plus or ministic cents are set.</li> <li>Significant by (SD) in Manual for</li> </ol>	means correct but no 12.3, 123, 123.*, 1.23x10 <sup>01</sup> , .0190, 12.30, 123.0, 1.23 1.23*10 <sup>2</sup> , 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is equired for exact-dol digit problems are i the answer blank. Se details. on the test	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 a the third sign and significated of problems sho by (integer) in e exact, no plu totation. be answered to permitted. The lar answers. Indicated by un e the UIL Cons	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point derlined numbers titution and Con</pre>	s s, as ith k. igit, but and and test
III.	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated p.</li> <li>Except for detailed be three sign.</li> <li>Integer pro- no decimal</li> <li>Dollar sign plus or min cents are</li> <li>Significant by (SD) in Manual for</li> <li>Angle meas</li> </ol>	means correct but no 12.3, 123, 123.*, 1.23x10 <sup>01</sup> , .0190, 12.30, 123.0, 1.23 1.23*10 <sup>2</sup> , 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is equired for exact-dol digit problems are i the answer blank. Se details. on the test re: rad means radiar	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 a the third sig and significa ed problems sho by (integer) in e exact, no plu totation. be answered to permitted. Th lar answers. Indicated by un ee the UIL Cons	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point derlined numbers titution and Con egrees.</pre>	s s, as ith k. igit, but and and test
III.	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated print three sign</li> <li>Except for detailed by three sign</li> <li>Integer print no decimal</li> <li>Dollar sign plus or min cents are</li> <li>Significant by (SD) in Manual for</li> <li>Some symbols uses</li> <li>Angle meast</li> </ol>	means correct but no 12.3, 123, 123.*, 1.23x10 <sup>01</sup> , .0190, 12.30, 123.0, 1.23 1.23*10 <sup>2</sup> , 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is equired for exact-dol digit problems are i the answer blank. Se details. on the test re: rad means radiar gonometric functions:	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 a the third sig and significa d problems sho by (integer) in e exact, no plu totation. be answered to permitted. Th lar answers. Indicated by un se the UIL Cons arcsin for in	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point derlined numbers titution and Con egrees. verse sine, etc.</pre>	s s, as ith k. igit, but and test
III.	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or min permitted.</li> <li>For stated particle</li> <li>For stated particle</li> <li>Except for detailed ba three sign</li> <li>Integer pro- no decimal</li> <li>Dollar sign plus or min cents are</li> <li>Significant by (SD) in Manual for</li> <li>Some symbols used</li> <li>Angle meast</li> <li>Special num</li> </ol>	means correct but no 12.3, 123, 123.*, 1.23x10 <sup>01</sup> , .0190, 12.30, 123.0, 1.23 1.23*10 <sup>2</sup> , 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is equired for exact-dol digit problems are i the answer blank. Se details. on the test re: rad means radiar gonometric functions: bers: $\pi$ for 3.14159	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 and significated and significated of problems sho by (integer) in a exact, no plu notation. be answered to permitted. Th lar answers. Indicated by un set the UIL Cons arcsin for in ; e for 2.7	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, )<sup>-2</sup> 2, 1.230x10<sup>2</sup>, )<sup>-3</sup>, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point derlined numbers titution and Con egrees. verse sine, etc. 1828</pre>	s s, as ith k. igit, but and test
III.	<ol> <li>Examples ( Correct:</li> <li>Incorrect:</li> <li>Plus or ministed.</li> <li>For stated p</li> <li>Except for detailed be three sign.</li> <li>Integer pro- no decimal</li> <li>Dollar sign plus or ministed p</li> <li>Significant by (SD) in Manual for</li> <li>Some symbols used</li> <li>Angle meast</li> <li>Inverse trained</li> <li>Logarithms</li> </ol>	means correct but no 12.3, 123, 123.*, 1.23x10 <sup>01</sup> , .0190, 12.30, 123.0, 1.23 1.23*10 <sup>2</sup> , 0.19, 1. us one digit error ir oblems integer, dollar sign, low, answers to state ficant digits. blems are indicated k blems answers must be point or scientific r (\$) problems should us one cent error is equired for exact-dol digit problems are i the answer blank. Se details. on the test re: rad means radiar gonometric functions: bers: $\pi$ for 3.14159 Log means common (k	ot recommended) 1.23x10*, 1.23x 0.0190, 1.90x10 (10) <sup>2</sup> , 1.23·10 <sup>2</sup> 9x10 <sup>-2</sup> , 19.0x10 and significated and significated of problems sho by (integer) in the exact, no plue totation. be answered to permitted. The lar answers. Indicated by un the the UIL Consections arcsin for in ; e for 2.7 pase 10); Ln m	<pre>x10<sup>0*</sup> 1.23x10<sup>1</sup>, y-2 2, 1.230x10<sup>2</sup>, y-3, 1.90E-02 nificant digit i nt digit problem uld be written w the answer blan s or minus one d the exact cent, e decimal point derlined numbers titution and Con egrees. verse sine, etc. 1828 eans natural (ba</pre>	s s, as ith k. igit, but and test se e);





24X-11.	$\frac{(3100 + 1510)}{(0.61 - 5.29)} + \frac{(-1450 + 2300)}{(9.29 - 7.26)}  \dots$		· 11=	
24/42	$-7.47(5.51 \times 10^{-5} + 1.00 \times 10^{-5}) -1.44$	×10 <sup>-6</sup>	10	
24X-12.	(165 - 170)(4.38)0.296	- 0.193	- 12=	
24X-13.	$\frac{3.05 \times 10^5 + 3.33 \times 10^5}{(-1.32)(-0.487) + 0.812} + \frac{2450 - 1760}{(0.00314)(2)}$	+ <u>5320</u> 2.67)	- 13=	
24X-14.	$\frac{671 + 189 - 647}{(0.774)(3.73)} - \frac{(-5330)(6.27 \times 10^{-4} + 10^{-4})}{0.756 + 0.284}$	<u>2.74x10<sup>-4</sup>)</u> - 1.23	- 14=	
24X-15.	$\frac{7150 + 25500 - (20800 + 39800)(1.1 - 0)}{(-444)(-1.69)(-4.7)(282 - 191 + 33)}$	0.833) 4)	- 15=	
24X-16. If 236 of adult mer	Assume that there are 412 adult men of wo them are involved in the local farming indus n are not involved in farming?	orking age in Aberdeen. stry, what fraction of	16=	%
24X-17. In 2021, income	In 2000, the median household income in $A$ it was $\frac{56,327}{2}$ . Find the percent increase i	Aberdeen was \$ <u>28,625</u> . n median household	17=	<u>%(SD)</u>
24X-18. the area	Phil just purchased a 5-acre lot. If a rod is of his lot in square rods?	16.5 feet long, what is	18=	<u>rod²</u>
24X-19		24X-20.		
	RIGHT TRIANGLE	I RIGHT TI	RIANGLE	



24X-21.	$\frac{-0.303 + 1/(-2.85)}{1/(2.76) + 0.88} + \frac{1}{(-0.358)} - \dots$		- 21=
24X-22.	$\frac{1}{-7.99 + 18.1} + \frac{1}{9.81 - 74.1} + \frac{1}{(\pi)}$		- 22=
24X-23.	$[-12.6 + \sqrt{68.8}]^2 \times [581 + 794]^2 \times \sqrt{0.0}$	0893/0.0417	- 23=
24X-24.	(354)(0.53) + $\sqrt{(1520)/(3.33)}$ + [(0.936)	)(6.23)] <sup>2</sup>	- 24=
24X-25.	$ \left[ \frac{2.15 + 0.537 + \sqrt{0.344/0.637}}{0.262 + 0.0959} \right]^2 $		- 25=
24X-26. diameter	Lura is driving her RAV4 at a speed of 72 m of 27 inches, what is the rotational speed o	nph. If her tires have a of the tires?	26= <u>RPM</u>
24X-27. jogs 6 lap run in a y	A football field is 160 feet wide and 100 yar along the perimeter of the field every mo ear?	rds long. If Coach Sark prning, how far does he	27=mi
24X-28. C Castle Ro Castle Ro	Castle Rock, CO is south of Denver, CO. As ck to Denver's southern city limit is 18 mile ck to the northern city limit is 47 miles. Ho	sume the distance from es, and the distance from ow long is Denver, south	
to north?			yd
24X-29		24X-30.	
	Volume = 77.02 Volume = $75.02$	0.0712 - Volum	0.117 0.117 he = ?
24X-29	=	24X-30 =	

Page 24X-5	
24X-41. $10^{-\{(0.409 - 0.475)/(0.396 + 0.319)\}}$	41=
24X-42. $\frac{e^{+0.364} + e^{-0.446}}{(7.69 + 3.56)}$	
24X-43. $\frac{6.58 \times 10^{-4} - 7.15 \times 10^{-4}}{\log(4.95 \times 10^{-4} + 1.39 \times 10^{-4})}$	
24X-44. $(653 + 1030)^{1/3} + 1/{(196)^{-0.364}}$	
24X-45.(deg) $\frac{\cos\{(36.6^{\circ})/(6.29)\}}{\sin\{104^{\circ} - 108^{\circ}\}}$	
24X-46. A recipe for 2 dozen 3-inch-diameter cookies sugar. How much sugar is needed to make 90 4-incl assuming volumes scale?	es uses 0.75 cups of h-diameter cookies, 46= <u>cup</u>
24X-47. Coach Taylor thinks the team score of Sabin increasing linearly this year. Their team scores so fa 1032, 1047 and 1066. Predict their team score at the their $12^{\text{th}}$ meet of the year.	ne's calculator team is ar are 984, 1002, 1024, ne TMSCA State Meet, 47=
24X-48. Solve for $w, w > 2$ , if $w^2 + \frac{1}{w} = 13$	48=
24X-49. HEMISPHERES AND CYLINDER	24X-50. HOLLOW CYLINDER
Cylinder Volume = 1.2(Volume of Combined Hemispheres) I = 1.04 I = 1.04	14.2 $18.8$ $4.8$ Volume = ?
24X-49 =	24X-50 =



24X-61. The temperature for a typical day in Aberdeen varies sinusoidally. The low temperature of 12° occurs at 4:00 AM and the high temperature 24° occurs at 4:00 PM. How many hours is the temperature at or above  $20^\circ$ ? ---- 61=\_\_\_\_\_\_hr

24X-62. Cindy rolls a fair die 25,892 times. Find the probability she rolled a 3 every time?----- 62=\_\_\_\_\_

24X-63. Sylvia stands on the roof of the Abilene State Bank and throws a baseball at a speed of 75 mph at an angle of 30° above the horizontal. If the ball left her hand at a height of 120 ft, what is the time of flight of the



2023-2024

## HS Virtual Challenge Meet #4 - Key

24X-1	= -1.17 $= -1.17 \times 10^{0}$	24X-11	= -566 = -5.66x10 <sup>2</sup>	24X-21	= -3.32 = -3.32x10 <sup>0</sup>
24X-2	= -48.5 = -4.85x10 <sup>1</sup>	24X-12	= 1.93x10 <sup>-5</sup>	24X-22	$= 0.402 \\= 4.02 \times 10^{-1}$
24X-3	= 385 = 3.85x10 <sup>2</sup>	24X-13	= 1.16x10 <sup>6</sup>	24X-23	= 5.13x10 <sup>7</sup>
24X-4	= -148000 = -1.48x10 <sup>5</sup>	24X-14	= 48.5 = 4.85x10 <sup>1</sup>	24X-24	= 243 = 2.43x10 <sup>2</sup>
24X-5	$= 0.0577 \\= 5.77 \times 10^{-2}$	24X-15	= -0.0110 = -1.10×10 <sup>-2</sup>	24X-25	= 91.4 = 9.14x10 <sup>1</sup>
24X-6	=-10.6 = $-1.06 \times 10^{1}$	24X-16	=42.7 = $4.27 \times 10^{1}$	24X-26	=896 $=8.96 \times 10^{2}$
24X-7	=3480 $=3.48 \times 10^{3}$	24X-17	=96.78 (4SD) =9.678×10 <sup>1</sup>	24X-27	=382 = 3.82 × 10 <sup>2</sup>
24X-8	=113 $=1.13 \times 10^{2}$	24X-18	=800 $=8.00 \times 10^{2}$	24X-28	=51000 $=5.10 \times 10^{4}$
24X-9	=2850 = $2.85 \times 10^3$	24X-19	=50.9 = 5.09×10 <sup>1</sup>	24X-29	=6.33 = 6.33×10 <sup>0</sup>
24X-10	=7.77 =7.77×10 <sup>0</sup>	24X-20	=19.0 = $1.90 \times 10^{1}$	24X-30	=0.000198 $=1.98 \times 10^{-4}$

				2023	3-202	4			
	HS	Virtu	al	Chall (	enge	Meet #	4	- Ke	γ
24X-31	= 729 = 7.29x10 <sup>2</sup>	24X-41		24 24×10 <sup>0</sup>	24X-51	= 4.29 = 4.29x10 <sup>0</sup>		24X-61	=9.40 =9.40×10 <sup>0</sup>
24X-32	$= 0.00505$ $= 5.05 \times 10^{-3}$	24X-42	= 0.1 = 1.8	185 35×10 <sup>-1</sup>	24X-52	= 113000 = 1.13x10 <sup>5</sup>		24X-62	$=1.28 \times 10^{-20148}$
24X-33	= 9.09 = 9.09x10 <sup>0</sup>	24X-43	= 1.7	78×10 <sup>-5</sup>	24X-53	= 21.3 = 2.13x10 <sup>1</sup>		24X-63	=4.93 =4.93×10 <sup>0</sup>
24X-34	= 0.279 = 2.79x10 <sup>-1</sup>	24X-44	= 18 = 1.8	.7 37×10 <sup>1</sup>	24X-54	= 1.30 = 1.30×10 <sup>0</sup>		24X-64	=247 =2.47×10 <sup>2</sup>
24X-35	= 65.9 = 6.59x10 <sup>1</sup>	24X-45		4.3 .43x10 <sup>1</sup>	24X-55	= 2.85 = 2.85x10 <sup>0</sup>		24X-65	=21.2 =2.12×10 <sup>1</sup>
24X-36	=831000 =8.31×10 <sup>5</sup>	24X-46	=6.6 =6.6	7 7×10 <sup>0</sup>	24X-56	=55.4 =5.54×10 <sup>1</sup>		24X-66	= -2.82 = -2.82x10 <sup>0</sup>
24X-37	=2.42 =2.42×10 <sup>0</sup>	24X-47	=116 =1.1	0 6×10 <sup>3</sup>	24X-57	=220 =2.20×10 <sup>2</sup>		24X-67	= 464 = 4.64x10 <sup>2</sup>
24X-38	=\$500.00	24X-48	= 3.4 = 3.4	8 8×10 <sup>0</sup>	24X-58	=1.25 =1.25×10 <sup>0</sup>		24X-68	= 0.266 = 2.66x10 <sup>-1</sup>
24X-39	=1.39 =1.39×10 <sup>0</sup>	24X-49	=1.3( =1.3	0 0 × 10 <sup>0</sup>	24X-59	=64.4 = 6.44 × 10 <sup>1</sup>		24X-69	= 0.565 = 5.65x10 <sup>-1</sup>
24X-40	=2.45 =2.45×10 <sup>0</sup>	24X-50	=264 =2.6	.0 4 × 10 <sup>3</sup>	24X-60	=374 =3.74×10 <sup>2</sup>		24X-70	= 1.69 = 1.69x10 <sup>0</sup>



# 2023-2024 HS VIRTUAL CHALLENGE MEET #4



# **COMPUTER SCIENCE**

### DO NOT OPEN TEST UNTIL TOLD TO DO SO

The Virtual Challenge Meets<sup>TM</sup>

## 2023-2024 High School Virtual Challenge Meet #4

#### General Directions:

1) DO NOT OPEN EXAM UNTIL TOLD TO DO SO.

#### 2) NO CALCULATORS of any kind may be used.

- 3) You have 45 minutes to complete this contest. If you are in the process of actually writing an answer when the signal to stop is given, you may finish writing that answer.
- 4) Papers may not be turned in until forty-five minutes have elapsed. If you finish the test before the end of the allotted time, remain at your seat and retain your paper until told to do otherwise. You may use this time to check your answers.
- 5) All answers must be written on the answer sheet/Scantron card provided. Indicate your answers in the appropriate blanks provided on the answer sheet or on the Scantron card. Clean erasures are necessary for accurate Scantron grading.
- 6) You may place as many notations as you desire anywhere on the test paper except on the answer sheet or Scantron card which is reserved for answers only.
- 7) You may use additional scratch paper provided by the contest director.
- 8) All questions have ONE and only ONE correct (BEST) answer. There is a penalty for all incorrect answers. All provided code segments are intended to be syntactically correct, unless otherwise stated (i.e. error is an answer choice). Ignore any typographical errors and assume any undefined variables are defined as used.
- 9) A reference to commonly used Java classes is provided with the test and you may use this reference during the contest. You may detach the reference sheets from the test booklet but DO NOT DO SO UNTIL THE CONTEST BEGINS.
- 10) Assume that any necessary import statements for **Standard Java 20 Packages** and classes (e.g. .lang, .util, System, Math, Double, etc.) are included in any programs or code segments that refer to methods from these classes and/or packages.

#### Scoring:

1) All questions will receive 6 points if answered correctly; no points will be given or subtracted if unanswered; 2 points will be deducted for each incorrect answer.

#### Standard Classes and Interfaces — Supplemental Reference

#### class java.lang.Object

- o boolean equals(Object other)
- o String toString()
- o int hashCode()

#### interface java.lang.Comparable<T>

o int compareTo(T other)
Return value < 0 if this is less than other.
Return value = 0 if this is equal to other.
Return value > 0 if this is greater than other.

#### class java.lang.Integer implements

#### Comparable<Integer>

- O Integer(int value)
- o int intValue()
- o boolean equals(Object obj)
- o String toString()
- o int compareTo(Integer anotherInteger)
- o static int parseInt(String s)

#### class java.lang.Double implements

#### Comparable<Double>

- O Double(double value)
- o double doubleValue()
- o boolean equals(Object obj)
- o String toString()
- o int compareTo(Double anotherDouble)
- o static double parseDouble(String s)

#### class java.lang.String implements

#### Comparable<String>

- o int compareTo(String anotherString)
- O boolean equals(Object obj)
- o int length()
- String substring(int begin, int end)
   Returns the substring starting at index begin
   and ending at index (end 1).
- o String substring(int begin)
  Returns substring(from, length()).
- int indexOf(String str)
   Returns the index within this string of the first occurrence of str. Returns -1 if str is not found.
- int indexOf(String str, int fromIndex)
   Returns the index within this string of the first occurrence of str, starting the search at the specified index.. Returns -1 if str is not found.

```
o charAt(int index)
```

- o int indexOf(int ch)
- o int indexOf(int ch, int fromIndex)
- o String toLowerCase()
- o String toUpperCase()
- O String[] split(String regex)
- o boolean matches(String regex)

#### class java.lang.Character

- o static boolean isDigit(char ch)
- o static boolean isLetter(char ch)
- o static boolean isLetterOrDigit(char ch)
- o static boolean isLowerCase(char ch)
- o static boolean isUpperCase(char ch)
- o static char toUpperCase(char ch)
- o static char toLowerCase(char ch)

#### class java.lang.Math

- o static int abs(int a)
- o static double abs(double a)
- O static double pow(double base,
  - double exponent)
- o static double sqrt(double a)
- o static double ceil(double a)
- o static double floor(double a)
- o static double min(double a, double b)
- o static double max(double a, double b)
- o static int min(int a, in b)
- o static int max(int a, int b)
- o static long round(double a)
- static double random()Returns a double value with a positive sign, greater than or equal to 0.0 and less than 1.0.

#### interface java.util.List<E>

- O boolean add(E e)
- o int size()
- 0 Iterator<E> iterator()
- O ListIterator<E> listIterator()
- O E get(int index)
- E set(int index, E e) Replaces the element at index with the object e.
- void add(int index, E e) Inserts the object e at position index, sliding elements at position index and higher to the right (adds 1 to their indices) and adjusts size.
- E remove (int index)
   Removes element from position index, sliding elements at position (index + 1) and higher to the left (subtracts 1 from their indices) and adjusts size.

#### class java.util.ArrayList<E> implements List<E>

#### class java.util.LinkedList<E> implements

List<E>, Queue<E>

 $Methods \ in \ addition \ to \ the \ {\tt List} \ methods:$ 

- o void addFirst(E e)
- o void addLast(E e)
- O E getFirst()
- O E getLast()
- O E removeFirst()
- O E removeLast()

#### 2023-2024 Virtual Challenge Meet #4 - Computer Science Test

#### class java.util.Stack<E>

- o boolean isEmpty()
- O E peek()
- O E pop()
- O E push(E item)

#### interface java.util.Queue<E>

- o boolean add(E e)
- o boolean isEmpty()
- O E peek()
- O E remove()

#### class java.util.PriorityQueue<E>

- o boolean add(E e)
- o boolean isEmpty()
- O E peek()
- O E remove()

#### interface java.util.Set<E>

- O boolean add(E e)
- o boolean contains(Object obj)
- o boolean remove(Object obj)
- o int size()
- O Iterator<E> iterator()
- o boolean addAll(Collection<? extends E> c)
- o boolean removeAll(Collection<?> c)
- o boolean retainAll(Collection<?> c)

#### class java.util.HashSet<E> implements Set<E>

#### class java.util.TreeSet<E> implements Set<E>

#### interface java.util.Map<K,V>

- O Object put(K key, V value)
- o V get(Object key)
- o boolean containsKey(Object key)
- o int size()
- o Set<K> keySet()
- O Set<Map.Entry<K, V>> entrySet()

#### class java.util.HashMap<K,V> implements Map<K,V>

#### class java.util.TreeMap<K,V> implements Map<K,V>

#### interface java.util.Map.Entry<K,V>

- O K getKey()
- O V getValue()
- o V setValue(V value)

#### interface java.util.Iterator<E>

- o boolean hasNext()
- O E next()
- o void remove()

#### interface java.util.ListIterator<E> extends

#### java.util.Iterator<E>

Methods in addition to the Iterator methods:

- o void add(E e)
- o void set(E e)

#### class java.lang.Exception

- o Exception()
  - o Exception(String message)

#### class java.util.Scanner

- o Scanner(InputStream source)
- o boolean hasNext()
- o boolean hasNextInt()
- o boolean hasNextDouble()
- O String next()
- o int nextInt()
- o double nextDouble()
- O String nextLine()
- O Scanner useDelimiter (String pattern)

#### 2023-2024 Virtual Challenge Meet #4 – Computer Science

Note: Correct responses are based on Java SE Development Kit 20 (JDK 20), from Sun Microsystems, Inc. All provided code segments are intended to be syntactically correct, unless otherwise stated (i. e. error is an answer choice) and any necessary Java SE 20 Standard Packages have been imported. Ignore any typographical errors and assume any undefined variables are defined as used. For all output statements, assume that the System class has been statically imported using: *import static java.lang.System.\*;* 

QUESTION 1				
What is $12_8$ times $14_8$ ?				
<b>A.</b> 1328	<b>B.</b> 1758	<b>C.</b> 1718	<b>D.</b> 2317	E. AB <sub>11</sub>
QUESTION 2				
What is output by the cod	le to the right?			
A. 44	<b>B</b> . 50		out.print( 40 + 10 );	
C. 4010	<b>D.</b> 0			
E. 40+10				
QUESTION 3				
What is output by the cod	le to the right?			
A. A1	<b>B</b> . 98		<pre>out.print( 'A' + 1 );</pre>	
<b>C.</b> 66	<b>D.</b> в			
E. There is no output due	e to a syntax error.			
What is output by the cod	le to the right?		String s - "www.oplus	compaci com".
A. ww	B. sci		out.println(s.substrin	ng(0,3));
C. com	D.apl			
E. www				
QUESTION 5			boolean a = false;	
what is output by the code to the right?			a = true ^ false    t	rue;
A. true	B. false		out.princin( a ),	
QUESTION 6				
What is output by the code to the right?			<pre>int w = (short)Math.ceil(2.3); out println(w);</pre>	eil(2.3);
<b>A</b> . 2	<b>B.</b> 3		<pre>out.println( w );</pre>	
C. 2.0	D. 3.0	E. null		
QUESTION 7 What is output by the code to the right?				
What is output by the code to the right?			int $x = 4;$	
<b>A</b> . 12	<b>B.</b> 7		out.println( x * b );	
C. 12.0	<b>D.</b> 7.0	E. 1		
QUESTION 8			int y = 0	
What is output by the cod	le to the right?		int x = 9; $if(x > 5)$	
<b>A</b> . 53	<b>B.</b> 543		System.out.print(". else if( $x > 8$ )	ō");
<b>C.</b> 43	<b>D.</b> 54		System.out.print("	4");
E. 3			System.out.println( 3	);

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QUESTION 9		
What is output by the code	e to the right?	int r = 0
<b>A</b> . 047	<b>B.</b> 910111213141516	for( int i = 0; i <r; i+="2)&lt;/td"></r;>
<b>C</b> . 036	D. 91011121314151617	<pre>out.print( r++ );</pre>
E. The output cannot be de	etermined due to an infinite loop.	
QUESTION 10		
What is output by the code	e to the right?	
A. 9	<b>B.</b> 7	double[] $a = \{2, 1, 2, 5, 7, 9\};$
C. 11.0	D. 11	
E. 9.0		
QUESTION 11		
What is output by the code	e to the right?	String $s = "7#21#0#3";$
<b>A</b> . 7	<b>B.</b> 21	aplus.useDelimiter("#");
<b>C.</b> 3	<b>D.</b> 0	<pre>aplus.next();</pre>
E. There is no output due	to a syntax error.	out.printin( apius.next() );
QUESTION 12		
What is output by the code	e to the right?	int $w = 9;$ int $r = 0;$
<b>A</b> . 39	<b>B.</b> 42	while ( $w > -3$ )
<b>C.</b> 45	<b>D.</b> 0	{ r += w·
E. There is no output due	to a runtime error.	}
		<pre>out.print(r);</pre>
QUESTION 13		
What is output by the code	e to the right?	$int[][] m = \{\{5\}, \{3, 1, 2\}, \{4, 7\}\}$
<b>A</b> . 3	<b>B.</b> 2	
C. 1	<b>D.</b> 7	<pre>out.println( m[1][1] );</pre>
E. There is no output due	to a syntax error.	
QUESTION 14		
What is output by the code	e to the right?	<pre>ArrayList<byte> b; b = new ArrayList&lt;&gt;():</byte></pre>
<b>A.</b> 0	<b>B</b> . 1	b.add(3);
<b>C.</b> 2	D. 3	b.add(120);
E. There is no output due	to a syntax error.	
QUESTION 15		
What is output by the code	e to the right?	
A. 70	<b>B.</b> 070	<pre>System.out.println(070);</pre>
<b>C.</b> 56	<b>D.</b> 107	
E. There is no output due	to a syntax error.	

QUESTION 16			
What is output by the code to the right?			
A. 3 B. 12	<pre>System.out.println( 100 &gt;&gt; 4 + 1 );</pre>		
C. 6 D. 25			
<b>E.</b> 0			
QUESTION 17			
What is output by line $//1$ in the code to the right?			
A. 5			
<b>B.</b> 3			
C. 44			
<b>D.</b> 2	Map $m = new HashMap();$		
E. 1	m.put(4, 4);		
QUESTION 18	m.put(32,1);		
What is output by line $//2$ in the code to the right?	out.println( m.get(4) ); //1 out.println( m.get(4) ); //2		
A. 5			
<b>B.</b> 3			
C. 44			
<b>D.</b> 2			
E. 1			
QUESTION 19			
Which of the following best describes the sort algorithm that is used by An	rrays.sort() to sort primitive values?		
A. dual pivot quicksort B. mergesort C. timsort	D. A and B only E. A, B, and C		
QUESTION 20			
Which of the following interfaces does HashMap implement?			
A. Map B. Collection C. SortedMap	D. A and B only E. A, B, and C		
QUESTION 21			
What is output by the code to the right?	out.println(0b1001 + 0x11);		
A. 21 B. 26 C. 24 D. 23 E. 25			
QUESTION 22What is output by the code to the right?A6B. 1C5D. 3E1	<pre>int[] a = {-5,0,3,6,10,13,45,51}; int pos; pos = Arrays.binarySearch(a,11);</pre>		
	<pre>out.println(pos);</pre>		

QUESTION 23	
What is output by //line 1 in the code to the right?	void bob(int[] list, int x, int v)
A. 1	{
<b>B.</b> 2	<pre>list[x]=v;</pre>
C. 4	3
D. 88	<pre>void sue(int[] list)</pre>
E. 99	{
QUESTION 24	list[0]=99;
What is output by //line 2 in the code to the right?	list[1]=88;
A. 1	
<b>B.</b> 2	
C. 4	//client code ////////////////////////////////////
D. 88	bob(z,0,4);
E. 99	<pre>out.println(z[0]); //line 1</pre>
	<pre>sue(z); out.println(z[1]); //line 2</pre>
QUESTION 25	
What is output by the code to the right?	Tatagan u = 0.
	for (int $i=3;i<27;i+=6$ )
A. 42 $D. 48$	x += i;
C. 56 D. 54	out.printin( x );
CUESTION 26	
What is output by the code to the right?	
	double $x = 1.279;$
A. 1.27 B. 1.29	<pre>out.printf("%.2f", x);</pre>
$ \begin{array}{c} \mathbf{C}, 1, 30 \\ \mathbf{D}, 1, 28 \\ \mathbf{E}, \mathbf{T} \\ \mathbf{T}$	
DUESTION 27	
What is output by the code to the right?	
A ALIOTO B APLUS COM	<pre>String s = "APLUSCOMPSCI.COM"; s = s replaceAll("[^AFIOUL*" ""))</pre>
C AFTOIL D DISCMPSC CM	out.println(s);
E APLUSCOMPSCI COM	
QUESTION 28	
What is output by the code to the right?	StringBuilder g;
A. aplus B. sulpa	<pre>g = new StringBuilder("aplus"); g = new StringBuilder("aplus");</pre>
C. null D. alpsu	<pre>g.reverse(); out.println(g);</pre>
E. There is no output due to a syntax error.	

QUESTION 29	
What is output by line $//1$ in the code to the right?	
A. 8	Stack <string> b;</string>
B. F	<pre>b = new Stack<string>();</string></pre>
С. А	b.add( "A" );
D. 2	b.add("2");
Е. х	b.add("F"); b.add("8");
QUESTION 30	b.add( "x" );
What is output by line $//2$ in the code to the right?	Collections.sort(b);
A. 3	out.println( b.pop() ); //1
B. 2	aut println(h aize()), (/2)
C. 4	out.printin( b.size() ); //z
E1	
What is returned by $co(3, 4)$ ?	
$ \begin{array}{c} \mathbf{A}, 10 \\ \mathbf{C}, 7 \\ \mathbf{D}, 11 \\ \mathbf{D}, 0 \\ \mathbf{D}, 11 \\ \mathbf{D}, 0 \\ \mathbf{D}, 11 \\ \mathbf{D}, 0 \\ \mathbf{D}$	public static int go(int x, int y)
$\mathbf{E}$	$\begin{cases} if(v < 1) \end{cases}$
QUESTION 32	return x;
What is returned by $a = (5, 7)$ ?	else return go(x, v - 2) + x;
A 32 B 25	}
<b>A.</b> 52 <b>D.</b> 23	
E. 64	
QUESTION 33	
What is output by line $//1$ in the code to the right?	
A2	
<b>B</b> . 3	Queue <integer> u;</integer>
<b>C</b> 10	<pre>u = new PriorityQueue&lt;&gt;(); u.add(3);</pre>
<b>D</b> 20	u.add(3);
E15	u.add(3); u.add(-2);
DUESTION 24	u.add(-10);
What is output by line $\frac{1}{2}$ in the code to the right?	u.add(-20); u.add(-15);
A. [-20, -10, -15, -2, 3, 3, 3]	<pre>out.println(u.peek()); //1</pre>
B. [-20, -15, -10, -2, 3, 3, 3]	
C. [-20, -10, -15, 3, 3, 3, -2]	out.printin(u); //2
D. [-20, -15, -2, 3, 3, 3, -10]	
E. [-20, -2, -15, 3, 3, 3, -10]	

QUESTION 35	
What is output by line $//1$ in the code to the right?	
A. 23     B. 21       C. 26     D. 19       E. 25	<pre>String p = ""; p += "practice."; p += "apluscompsci."; p += "com";</pre>
QUESTION 36	<pre>out.println( p.length() ); //1</pre>
What is output by line //2 in the code to the right?A. 8B. 13C. 9D. 17E. There is no output due to a syntax error.	<pre>p = p.substring(p.indexOf('.')); out.println( p.length() ); //2</pre>
QUESTION 37 How many objects are created by the code below? String r = "dog"; String b = "dog"; String c = new String("dog"); String x = "dog";	

#### QUESTION 38

How many binary 1s are in the bits of the number after executing the code below?

511 >> 4

#### QUESTION 39

After inserting the following values in the following order into a binary search tree, how many levels would the tree have?

10 20 30 40 -10 -20 25

#### QUESTION 40

After executing the following stack commands, what value would be at the top of the stack?

Push 3 Push 4 Push 6 Pop Push 1 Pop Pop Pop Pop Pop Pop

	Final Score
Name	2 <sup>nd</sup> Grading
School	1 <sup>st</sup> Grading
Division: 1A 2A 3A 4A 5A 6A Grade: 9 10 11 12	score initials 2

## The Virtual Challenge Meets Computer Science - Student Answer Sheet

1)	 21)
2)	 22)
3)	 23)
4)	 24)
5)	 25)
6)	 26)
7)	 27)
8)	 28)
9)	 29)
10)	 30)
	-
11)	 31)
12)	 32)
13)	 33)
14)	 34)
15)	 35)
16)	 36)
17)	 37)
18)	 38)
19)	 39)
20)	 40)

Total	Number	Correct		x	6	=	
Total	Number	Incorrect		х	-2	=	
Final	Score	(record here and	d top righ	t)			

## 2023-2024 Virtual Challenge Meet #4 Computer Science - KEY

1)	D	21)	В
2)	В	22)	A
3)	С	23)	С
4)	Ε	24)	В
5)	А	25)	В
6)	В	26)	D
7)	С	27)	A
8)	А	28)	В
9)	D	29)	Е
10)	Ε	30)	С
11)	В	31)	Ε
12)	В	32)	В
13)	С	33)	D
14)	Ε	34)	Ε
15)	С	35)	Ε
16)	A	36)	D
17)	D	37)	2
18)	С	38)	5
19)	А	39)	4
20)	D	40)	3

#### Note to Graders:

- All provided code segments are intended to be syntactically correct, unless otherwise stated (e.g. error is an answer). **Ignore any typographical errors**.
- Any necessary Standard Java 20 Packages are assumed to have been imported as needed.
- Assume any undefined (undeclared) variables have been defined as used.



# 2023-2024 HS VIRTUAL CHALLENGE MEET #4



# **CURRENT EVENTS**

### DO NOT OPEN TEST UNTIL TOLD TO DO SO

The Virtual Challenge Meets<sup>TM</sup>

## THE VIRTUAL CHALLENGE MEETS CURRENT ISSUES & EVENTS 2023-2024 MEET #4

- 1. The United States launched dozens of airstrikes from multiple locations, including use of long-range B1B bombers based in Texas, targeting Iran-backed militants in both Syria and Iraq. The U.S. military action was taken in retaliation for an attack that resulted in the deaths of three U.S. soldiers who were based in what country?
  - a. Israel
  - b. Syria
  - c. Jordan
  - d. Iraq
- 2. Claudia Dale Goldin, a professor at Harvard University, was the 2023 recipient of a Nobel Prize. What category?
  - a. chemistry
  - b. economics
  - c. literature
  - d. physics
- **3.** A major hazardous chemical accident, reportedly one of the worst in recent memory in the United States, occurred nearly a year ago in East Palestine, Ohio but problems remain today and President Biden pledged to visit the community on the one-year anniversary of the accident. What was the cause of this catastrophe?
  - a. a major traffic pile-up that resulted in three tank trucks overturning
  - b. a retention pond dam broke near a power plant resulting in flooded waste storage tanks
  - c. a relatively minor earthquake caused several large chemical waste containers to rupture
  - d. a train derailment that resulted in chemicals leaking from overturned tank cars
- 4. In spite of outcomes in Iowa caucuses and the New Hampshire primary, Nikki Haley pledged to remain in the race for the Republican presidential nomination. The former South Carolina governor once held what position in the Trump administration?
  - a. U.S. Ambassador to the United Nations
  - b. Deputy Defense Secretary
  - c. National Security Advisor
  - d. White House Press Secretary

#### \*\*\*\*NEW VCM CE SCORING SYSTEM FOR 2023-2024 TO MATCH UIL\*\*\*\* <u>2 POINTS</u> FOR EACH CORRECT ANSWER, MAXIMUM SCORE OF <u>80 POINTS</u>

## 5. Tesla announced a recall of more than 2.2 million vehicles, nearly all the company has sold in the United States. Why?

- a. braking system failures
- b. defective wiring that feeds steering system
- c. warning lights are too small
- d. potential alignment malfunctions

#### 6. Who is Fani Willis?

- a. a high-level Biden administration diplomat who works closely with Ukraine officials
- b. the Georgia district attorney prosecuting an election fraud case against Donald Trump
- c. Deputy Finance Minister of Britain believed to be running for Prime Minister
- d. U.S. Senator from Illinois who is considering a third party presidential run
- 7. Kenyan President William Ruto was disappointed by a court ruling in his own nation blocking plans to send 1,000 police officers to another country to "restore order" based on United Nations recommendations. What country is Ruto seeking to assist?
  - a. Ethiopia
  - b. Myanmar
  - c. Ukraine
  - d. Haiti
- 8. Extensive investigations and the grounding of multiple aircraft followed an incident involving the loss of a door panel plug, midflight, on a Boeing 737 Max plane. What airline experienced this potentially disastrous mishap?
  - a. Southwest
  - b. American
  - c. Alaska
  - d. United
- 9. The Biden administration confirmed the sale of 40 F-16s to Turkey the day after Turkey took what action?
  - a. approved Sweden's NATO membership
  - b. reaffirmed European Union support
  - c. ordered Iranian officials to leave the country
  - d. purchased carbon credits from China
- 10. According to a settlement released by the United States Justice Department, Andrew Cuomo harassed multiple victims and that his office culture was a "hostile environment." What office did he hold at the time?
  - a. Commerce Secretary
  - b. New York Governor
  - c. Baltimore Mayor
  - d. member of the U.S. House of Representatives
- 11. For the first time in more than a decade, a complete space shuttle is standing upright, in launch position, as a massive project of the California Science Center in Los Angeles is taking shape. The multimillion-dollar exhibit project will likely take years to complete before the shuttle is open to the public. Which shuttle?
  - a. Columbia
  - b. Atlantis
  - c. Endeavor
  - d. Discovery
- 12. New York Republicans selected Mazi Melesa Pilip, a county-level political official, as their candidate in a special election to fill the House of Representatives seat vacated by the expulsion of George Santos. Pilip, an immigrant who formerly served in Israel's military, was born in what country?
  - a. Ethiopia
  - b. Italy
  - c. Israel
  - d. Portugal
- 13. A group of executives representing social media companies appeared before a Senate committee investigating potential threats of social media to American youth. Currently, billions of individuals worldwide frequent social networking websites. Which one received the most visits as of the end of 2023?
  - a. TikTok
  - b. YouTube
  - c. Instagram
  - d. Facebook
- 14. Following allegations, supported by an audio recording, that he bribed Republican Senate candidate Kari Lake to withdraw from the race, the state's Republican Party Chairman Jeff DeWit resigned his position. What state?
  - a. North Dakota
  - b. Ohio
  - c. Arizona
  - d. Maine
- 15. The first Ivy League school to reverse course on pandemic-era "test-optional" admissions policies and, in by taking this action, will require SAT or ACT scores for next year's class of applicants. What school?
  - a. Harvard
  - b. Dartmouth
  - c. Yale
  - d. Cornell

- 16. President Nayib Bukele, a Central American leader under whose leader his country has witnessed a dramatic decrease in violent crime, was reelected in a landslide victory. Where?
  - a. El Salvador
  - b. Honduras
  - c. Nicaragua
  - d. Guatemala
- **17.** A New Mexico grand jury revived the criminal case against an actor affiliated with a movie filming location where a cinematographer was fatally shot on the set. Who is the actor facing a new set of charges?
  - a. Kevin Costner
  - b. Tom Hanks
  - c. Brad Pitt
  - d. Alec Baldwin
- **18.** United States Representative Colin Allred is leading the race against State Senator Roland Gutierrez and a group of others who are all seeking the Democratic Party nomination for what elected office.
  - a. Governor
  - b. United States Senator
  - c. Dallas Mayor
  - d. Attorney General
- 19. The United States Congress delayed passage of a military aid package in excess of \$100 billion that includes military aid to Israel because one of the conditions Republican leaders are unwilling to support the measures' additional legislation which is also considered a part of the package. What particular issue is being pursued?
  - a. firearm restrictions
  - b. green economy commitments
  - c. judicial nominee criteria
  - d. immigration / border control reform
- 20. Indian Prime Minister Narendra Modi led a celebration and participated in dedication ceremonies at the site of the new Ram Janmabhoomi Mandir Temple built on the location believed to be the birthplace of a major Hindu diety, Lord Ram. The massive project is not without controversy because it is being built in a location that was once home to what?
  - a. a British military base
  - b. the birthplace of Mahatma Gandhi
  - c. an Islamic mosque
  - d. an ancient burial ground
- 21. According to government officials nearly 400 people have died of starvation in recent months in the Tigray region of what African country?
  - a. Ethiopia
  - b. Morocco
  - c. Nigeria
  - d. Somalia

2023-2024 HS Virtual Challenge Meet #4

- 22. A group of Republicans in the United States House of Representatives launched an effort to, for the first time in nearly 150 years, impeach a sitting cabinet member, but the final vote to proceed fell short. Who was the targeted official?
  - a. Deb Haaland
  - b. Merrick Garland
  - c. Marty Walsh
  - d. Alejandro Mayorkas
- 23. A South American country, already experiencing one of the lengthiest droughts in its history, is now dealing with the deadliest wildfire outbreak ever, claiming more than 100 lives with hundreds of others missing. Where?
  - a. Peru
  - b. Chile
  - c. Ecuador
  - d. Paraguay
- 24. British Prime Minister Rishi Sunak announced proposed measures to overturn convictions of more than 900 individuals who were falsely accused of theft or fraud, over a period of more than a decade, because of a faulty computer system. The scandal occurred in which of the following sectors?
  - a. post office
  - b. secondary education
  - c. public transportation
  - d. the military
- 25. Just prior to the New Hampshire primary election, Florida Governor Ron DeSantis announced that he was suspending his campaign. Who did he endorse?
  - a. Nikki Haley
  - b. Robert Kennedy, Jr.
  - c. Donald Trump
  - d. he did not make an endorsement
- 26. As part of his efforts to modernize his nation, de facto leader and Crown Prince Muhammad bin Salman will allow sales of alcohol to foreign diplomats. Alcohol sales in the country have been banned since the early 1950s. Where?
  - a. Dubai
  - b. Jordan
  - c. Bahrain
  - d. Saudi Arabia
- 27. During a relatively rare television interview Jerome Powell stated, "We feel like we can approach the question of when to begin to reduce interest rates carefully," sparking optimism regarding the economic impact of inflation. Who is Powell?
  - a. U.S. Treasury Secretary
  - b. Federal Reserve Chair
  - c. Council of Economic Advisors Chair
  - d. U.S. Commerce Secretary

- 28. Former Prime Minister Imran Khan was sentenced to 14 years in prison for leaking classified documents and selling state gifts for personal gain as his country was in the midst of election campaigns. What country?
  - a. Turkmenistan
  - b. Portugal
  - c. Pakistan
  - d. Abu Dhabi
- 29. For the first time in decades, the World Cup soccer competition will be held in the United States in 2026. What state will host the championship game?
  - a. New Jersey
  - b. Texas
  - c. Florida
  - d. California
- **30.** The list of United States Senators, who are seeking reelection in 2024, includes three independents, all of whom caucus with the Democratic Party. Which of the following is NOT one of the group?
  - a. Kyrsten Sinema / Arizona
  - b. John Tester / Montana
  - c. Bernie Sanders / Vermont
  - d. Angus King / Maine
- **31.** The Biden administration is stepping up its military assistance to Guyana as the nation faces steadily increasing threats from its potentially hostile neighbor. What country is posing the threat?
  - a. Colombia
  - b. Myanmar
  - c. Sudan
  - d. Venezuela
- 32. Karen Bass, the first female mayor in her city's history, signed an executive directive called "Inside Safe" aimed at addressing problems associated with homelessness. What city does Bass lead?
  - a. Los Angeles
  - b. Atlanta
  - c. Seattle
  - d. Philadelphia
- **33.** The issue of Sikh separatism is at the heart of a decades-long diplomatic dispute that has intensified during 2023, between Canada and what Asian country?
  - a. Thailand
  - b. India
  - c. Myanmar
  - d. Bangladesh

34. In spite of U.S. diplomatic efforts, *Wall Street Journal* reporter Evan Gershkovich remains in custody on espionage allegations. Where

- a. Iran
- b. China
- c. Russia
- d. Syria
- 35. Public officials in Colombia are concerned about a growing hippopotamus population, believed to be well over 100 and possibly over 200 in number, living in jungle regions and roaming in river areas as well. The animals are invasive and currently efforts aimed at sterilization are underway. How did they get a start in Colombia?
  - a. a small group of four were illegally brought to the nation by the late Pablo Escobar
  - b. an agriculture agency officials introduced them to help control unwanted river vegetation
  - c. they migrated from neighboring Brazil where they are native
  - d. a group escaped from a circus that traveled throughout rural Colombia
- 36. Although House Speaker Mike Johnson represents the Republican Party, who is the Republican Party's House Majority Leader?
  - a. Kevin McCarthy
  - b. Steve Scalise
  - c. Tom Emmer
  - d. Elise Stefanik
- **37.** Buckingham Palace reports announced that Britain's King Charles III will postpone public engagements indefinitely while he undergoes treatment. What diagnosis that prompted the announcement?
  - a. cancer
  - b. dementia
  - c. tuberculosis
  - d. shingles
- **38.** Tens of thousands of protestors marched in opposition to President Javier Milei's proposed economic reforms. What country?
  - a. Colombia
  - b. Malaysia
  - c. Sri Lanka
  - d. Argentina

- **39.** The African National Congress, South Africa's major political party suspended a former president after he stated his intention to campaign for a rival political party. Who is this former president?
  - a. Thabo Mbeki
  - b. Jacob Zuma
  - c. F. W. de Klerk
  - d. Kgalema Motlanthe
- 40. As a result of the historic touchdown of the SLIM (Smart Lander for Investigating Moon) on the lunar surface, another country joined the exclusive club of nations, five total, that have successfully landed on the Moon. What nation achieved this most recent honor?
  - a. Brazil
  - b. France
  - c. Japan
  - d. Germany

#### **SAMPLE ESSAY QUESTION**

What does recent unemployment and inflation data suggest about the current state of the United States economy, what measure has the Biden administration taken to enhance economic growth, and to what extent will economic issues be a 2024 presidential election campaign issue?

\*\*\*This essay question is <u>NOT</u> part of the VCM Test\*\*\*

It is only being provided for additional student practice as they prepare for District

## **The HS Virtual Challenge Meets**

## **Current Events & Issues – Student Answer Sheet**

1	21
2	22
3	23
4	24
5	25
6	26
7	27
8	28
9	29
10	30
11	31
12	32
13	33
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15	35
16	36
17	37
18	38
19	39
20	40

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## 2023-2024

## HS Virtual Challenge Meet #4 Current Events & Issues – Answer Key

1.	С	21.	A
2.	В	22.	D
3.	D	23.	B
4.	Α	24.	A
5.	С	25.	С
6.	В	26.	D
7.	D	27.	B
8.	С	28.	С
9.	Α	29.	A
10.	В	30.	B
11.	С	31.	D
12.	Α	32.	A
13.	D	33.	B
14.	С	34.	С
15.	В	35.	A
16.	Α	36.	B
17.	D	37.	A
18.	B	38.	D
19.	D	39.	B
20.	С	40.	С



# 2023-2024 HS VIRTUAL CHALLENGE MEET #4



# LITERARY CRITICISM

## DO NOT OPEN TEST UNTIL TOLD TO DO SO

The Virtual Challenge Meets<sup>TM</sup>

#### The Virtual Challenge Meets Literary Criticism Contest • HS VCM #4 • 2023-2024

#### Part 1: Knowledge of Literary Terms and of Literary History

- 1. The period of English literature that spans 1750-1798, also called the Age of Sensibility, that saw the transition from Neoclassicism to Romanticism is termed the
  - A. Elizabethan Age.
  - B. Jacobean Age.
  - C. Caroline Age
  - D. Age of Johnson.
  - E. Augustan Age.
- 2. A part of Freytag's Pyramid, the event or force that sets in motion the rising action of a play is the
  - A. exposition.
  - B. catastrophe.
  - C. peripety.
  - D. inciting moment.
  - E. denouement.
- 3. The Fireside Poet and author of *Hiawatha*, *Tales of a Wayside Inn*, *Poems on Slavery*, and *Outre-Mer* is
  - A. James Russell Lowell.
  - B. Edgar Allan Poe.
  - C. James Fenimore Cooper.
  - D. John Greenleaf Whittier.
  - E. Henry Wadsworth Longfellow.
- 4. From the Latin word for "crowd," a word that has come to mean "common" or "commonly used" is
  - A. a priori.
  - B. vulgate.
  - C. omnibus.
  - D. nihil obstat.
  - E. auxesis.
- 5. <u>Not</u> among the authors to make meaningful contributions to British literature of the 18<sup>th</sup> century is
  - A. Alexander Pope.
  - B. Jonathan Swift.
  - C. Samuel Johnson.
  - D. Samuel Richardson.
  - E. Nathaniel Hawthorne.

- 6. The Nobel Prize committee recognized this Peruvian author "for his cartography of structures of power and his trenchant images of the individual's resistance, revolt, and defeat" when it awarded the 2010 Nobel Prize to
  - A. Luigi Pirandello.
  - B. Gabriel Garcia Márquez.
  - C. Camilo José Cela.
  - D. Mario Vargas Llosa.
  - E. Octavio Paz.
- 7. A nineteenth-century literary movement that rested on the credo, "Art for art's sake," is
  - A. acmeism.
  - B. scholasticism.
  - C. existentialism.
  - D. aestheticism.
  - E. surrealism.
- 8. A word or stem meaning "line," is
  - A. repetend.
  - B. stave.
  - C. foot.
  - D. meter.
  - E. stich.
- 9. Writing that by its incongruity of treatment ridicules a subject inherently noble or dignified is termed
  - A. travesty.
  - B. pasquinade.
  - C. caricature.
  - D. palinode.
  - E. kitsch.
- 10. The important poet of the Colonial Period, author of *The Tenth Muse, Lately Sprung Up in America*, is
  - A. Emily Dickinson.
  - B. Anne Bradstreet.
  - C. Amy Lowell.
  - D. Anne Sexton.
  - E. Phyllis Wheatley.

#### 30 items (1 point each)

- 11. A feat of strength and virtuosity, used in criticism to refer to works that make outstanding demonstrations of skill, is a(n)
  - A. ubi sunt.
  - B. ultima thule.
  - C. coup de théâtre.
  - D. tour de force.
  - E. deus ex machina.
- 12. The author of *Lady Chatterley's Lover, Sons* and Lovers, Women in Love, and The Plumed Serpent is
  - A. D. H. Lawrence.
  - B. Ford Maddox Ford.
  - C. James Joyce.
  - D. Aldous Huxley.
  - E. George Bernard Shaw.
- 13. The first English essayist, author of Advancement of Learning and Novum Organum, is
  - A. John Milton.
  - B. Thomas More.
  - C. John Donne.
  - D. Francis Bacon.
  - E. Ben Jonson.
- 14. A group of American writers, born around 1900, who served in the First World War and reacted against certain tendencies of earlier writers, is the
  - A. Lost Generation.
  - B. Beat Generation.
  - C. New York School.
  - D. Fugitives.
  - E. Black Mountain School.
- 15. A form of understatement in which a thing is affirmed by stating the negative of its opposite is
  - A. metonymy.
  - B. epanalepsis.
  - C. litotes.
  - D. chiasmus.
  - E. tautology.

- 16. The study of old forms of handwriting, important in textual studies for establishing texts and deciding authorship, is
  - A. antiquarianism.
  - B. paleography.
  - C. calligraphy.
  - D. epigraphy.
  - E. historicism.
- 17. <u>Not</u> a term that can describe near rhyme, as opposed to true rhyme, is
  - A. off-rhyme.
  - B. rime riche.
  - C. pararhyme.
  - D. oblique rhyme.
  - E. slant rhyme.
- 18. The effect resulting from the unsuccessful effort to achieve dignity or sublimity of style is
  - A. logos.
  - B. ethos.
  - C. bathos.
  - D. pathos.
  - E. mythos.
- 19. <u>Not</u> a term applied to a book size is
  - A. folio.
  - B. quarto.
  - C. octavo
  - D. duodecimo.
  - E. canto.
- 20. The genre most readily associated with Horace, Juvenal, Swift, and Pope is (the)
  - A. novel.
  - B. essay.
  - C. drama.
  - D. epic.
  - E. satire.

- 21. A novel in which magic, mystery, and chivalry are the chief characteristics is the
  - A. Gothic novel.
  - B. novel of character.
  - C. novel of manners.
  - D. novel of the soil.
  - E. novel of sensibility.
- 22. A term that since the 18<sup>th</sup> century has meant a systematic list of items in a book, volume, or series, along with some indication of location is
  - A. libretto.
  - B. codex.
  - C. lexicon.
  - D. index.
  - E. table of contents.
- 23. Linguistically, English is classified as a
  - A. Baltic language.
  - B. Dravidian language.
  - C. Slavic language.
  - D. Germanic language.
  - E. Romance language.
- 24. Generally, a word that resembles another and is used in its place for the purpose of euphemism, insult, avoidance of libel, or some other purpose is a(n)
  - A. paragram.
  - B. apothegm.
  - C. epigram.
  - D. anagram.
  - E. palindrome.
- 25. An important early American polemicist and pamphleteer, author of *The Crisis* and *Common Sense*, is
  - A. Charles Brockden Brown.
  - B. Philip Freneau.
  - C. Increase Mather.
  - D. Thomas Paine.
  - E. Benjamin Franklin.

- 26. In Greek mythology, the three sister goddesses who confer beauty, charm, and joy on human beings and nature are the
  - A. Graces.
  - B. Fates.
  - C. Muses.
  - D. femme inspiratrice.
  - E. femme fatale.
- 27. <u>Not</u> a term that could be applied to a shortened version of a work is
  - A. epitome.
  - B. abstract.
  - C. addenda.
  - D. abridgment.
  - E. précis.
- 28. The worship of material and mechanical prosperity and the disregard of culture, beauty, and spirit is
  - A. Epicureanism.
  - B. Philistinism.
  - C. Stoicism.
  - D. Hedonism.
  - E. Hellenism.
- 29. An address to a deity for aid, often in classical literature taking the form of an address to the Muses requesting their assistance in the writing process, is a(n)
  - A. parable.
  - B. ara.
  - C. malediction.
  - D. benediction.
  - E. invocation.
- 30. The 1984 Pulitzer Prize for Drama was awarded to *Glengarry Glen Ross* by
  - A. David Mamet.
  - B. Edward Albee.
  - C. Donald L. Coburn.
  - D. Horton Foote.
  - E. Tony Kushner.

#### Part 2: The UIL Reading List

#### 20 items (2 points each)

#### Items 31-37 are associated with Tennessee Williams's *The Glass Menagerie*. Items 38-44 are associated with George Eliot's *Silas Marner*. Items 45-50 are associated with William Butler Yeats's poetry (selected).

- 31. Amanda holds that, without planning, the past turns into
  - A. a source of fond memories.
  - B. a missed opportunity.
  - C. something irrevocably gone.
  - D. nothing more than a photograph.
  - E. everlasting regret.
- 32. The "good advice" that Jim gives Laura and encourages her to remember is to
  - A. go back to business college.
  - B. invite another gentleman caller.
  - C. think of herself as superior in some way.
  - D. stand up to her mother.
  - E. dance at every opportunity.
- 33. Amanda explains that she is "hateful to [her] children" because
  - A. she is jealous of their freedom.
  - B. her mother made her that way.
  - C. she fears so much for their futures.
  - D. her devotion makes her that way.
  - E. she is so angry at their father.
- 34. Mr. Wingfield's final communication with his family comes in the form of a post card sent from
  - A. Vancouver, British Columbia.
  - B. Havana, Cuba
  - C. Mazatlán, Mexico.
  - D. Madrid, Spain.
  - E. San Francisco, California.
- 35. The play's last stage directions that refer to Amanda emphasize her
  - A. absurdity and shrillness.
  - B. calm and accepting nature.
  - C. anger and resentment of Tom.
  - D. dignity and tragic beauty.
  - E. weakness and imbecility.

- 36. <u>Not</u> among the chores that Amanda insists must be completed before the arrival of the gentleman caller is
  - A. polishing the silver.
  - B. laundering the table linen.
  - C. washing the windows.
  - D. buying new candles for the candelabra.
  - E. preparing clothes for the family to wear.
- 37. Laura says that Amanda's looks of disapproval remind her of
  - A. a portrait of Mary's suffering.
  - B. a puppy who has been swatted.
  - C. a Christian martyr.
  - D. Tom's face when he leaves for work.
  - E. Gertrude in Shakespeare's Hamlet.
- 38. Godfrey and Nancy precipitously leave the dance floor during the New Year's Eve festivities because
  - A. Nancy is feeling ill.
  - B. Godfrey wants a drink.
  - C. Nancy wants to dance with another partner.
  - D. Squire Cass has stepped on Nancy's skirt and ripped it.
  - E. the music suddenly stops.
- 39. The character who holds that there is no harm in Silas and also predicts that Silas's money will be restored to him is
  - A. Mr. Snell
  - B. Ben Winthrop.
  - C. Mr. Macey.
  - D. Mr. Tookey.
  - E. Bob Lundy.
- 40. After the theft of Silas's gold, the citizens of Raveloe fiercely debate whether or not the "suspect"
  - A. carried a leather bag.
  - B. had a patchwork cloak.
  - C. had a small dog.
  - D. smelled of elderberries.
  - E. wore earrings.

- 41. Mr. Lammeter's inward musing at Squire Cass's New Year's Eve party — "Breed was stronger than pasture" — expresses his opinion on
  - A. the inadequacies of Raveloe horseflesh.
  - B. family pedigree and status.
  - C. the newest agricultural techniques.
  - D. inherited wealth.
  - E. relationships between servants and masters.
- 42. Squire Cass accuses Godfrey of being a "shilly shallow fellow," a trait the squire blames on
  - A. Godfrey's mother.
  - B. Dunstan's bad influence.
  - C. the squire's own indulgence.
  - D. too much drink.
  - E. Godfrey's blonde hair.
- 43. Dolly Winthrop's view of men is that they are
  - A. mysterious and unexplained.
  - B. created by God to be naturally troublesome.
  - C. likely to become criminals if they lack female influence.
  - D. necessary leaders for weak-willed women.
  - E. generally kind but in need of civilizing.
- 44. The landlord and publican of The Rainbow is
  - A. Mr. Snell.
  - B. Ben Winthrop.
  - C. Mr. Dowlas.
  - D. Mr. Tookey.
  - E. Bob Lundy.

#### Items 45-48 refer to William Butler Yeats's Easter, 1916

I have met them at close of day Coming with vivid faces From counter or desk among grey Eighteenth-century houses. I have passed with a nod of the head (5) Or polite meaningless words, Or have lingered awhile and said Polite meaningless words, And thought before I had done Of a mocking tale or a gibe (10) To please a companion Around the fire at the club, Being certain that they and I But lived where motley is worn: All changed, changed utterly: *(15)* A terrible beauty is born.

That woman's days were spent In ignorant good-will, Her nights in argument Until her voice grew shrill. (20) What voice more sweet than hers When, young and beautiful, She rode to harriers? This man had kept a school And rode our wingèd horse; (25) This other his helper and friend Was coming into his force; He might have won fame in the end, So sensitive his nature seemed, So daring and sweet his thought. (30) This other man I had dreamed A drunken, vainglorious lout. He had done most bitter wrong To some who are near my heart, Yet I number him in the song; (35) He, too, has resigned his part In the casual comedy; He, too, has been changed in his turn, Transformed utterly: A terrible beauty is born. (40)

Hearts with one purpose alone Through summer and winter seem Enchanted to a stone To trouble the living stream. The horse that comes from the road, (45)The rider, the birds that range From cloud to tumbling cloud, Minute by minute they change; A shadow of cloud on the stream Changes minute by minute; (50) A horse-hoof slides on the brim, And a horse plashes within it; The long-legged moor-hens dive, And hens to moor-cocks call; Minute by minute they live: (55) The stone's in the midst of all.

Too long a sacrifice Can make a stone of the heart. O when may it suffice? That is Heaven's part, our part (60) To murmur name upon name, As a mother names her child

When sleep at last has come On limbs that had run wild. What is it but nightfall? (65) No, no, not night but death; Was it needless death after all? For England may keep faith For all that is done and said. We know their dream; enough (70) To know they dreamed and are dead; And what if excess of love Bewildered them till they died? I write it out in a verse— MacDonagh and MacBride (75) And Connolly and Pearse Now and in time to be, Wherever green is worn, Are changed, changed utterly: A terrible beauty is born. (80)

- 45. "Easter, 1916" offers a meditation on
  - A. an Irish rebellion against English occupiers.
  - B. an English rebellion against Irish occupiers.
  - C. a violent conflict between Catholics and Protestants.
  - D. an imagined rebellion envisioned by Yeats.
  - E. a literary debate among Irish authors.
- 46. The phrase "terrible beauty" is best recognized as an example of
  - A. syllepsis.
  - B. irony.
  - C. synecdoche.
  - D. metaphor.
  - E. oxymoron.
- 47. Lines 57-59 allude to
  - A. The Aeneid.
  - B. The Odyssey.
  - C. The Illiad.
  - D. The New Testament.
  - E. The Old Testament.
- 48. The rhetorical figure whereby a speaker retracts or corrects something said, as in lines 65-66, is termed
  - A. metastasis.
  - B. metaplasm.
  - C. metathesis.
  - D. metalepsis.
  - E. metanoia.

#### ew Testament

#### Items 49-50 refer to William Butler Yeats's

#### To Some I Have Talked with by the Fire

While I wrought out these fitful Danaan rhymes, My heart would brim with dreams about the times

When we bent down above the fading coals And talked of the dark folk who live in souls Of passionate men, like bats in the dead trees; (5)

And of the wayward twilight companies Who sigh with mingled sorrow and content, Because their blossoming dreams have never bent

Under the fruit of evil and of good: And of the embattled flaming multitude (10) Who rise, wing above wing, flame above flame, And, like a storm, cry the Ineffable Name, And with the clashing of their sword-blades make

A rapturous music, till the morning break And the white hush end all but the loud beat (15)

Of their long wings, the flash of their white feet.

- 49. The phrase "white hush" (line15) is best recognized as an example of
  - A. oxymoron.
  - B. metonymy.
  - C. litotes.
  - D. synesthesia.
  - E. irony.
- 50. The biblical allusion in line 9 characterizes the "dreams" of line 8 as untouched by
  - A. a lack of fulfillment.
  - B. the disappointment of crop failure.
  - C. the influence of lesser poets.
  - D. interfering teachers.
  - E. humankind's fallen state.

#### Part 3: Ability in Literary Criticism 15 items (2 points each)

#### Items 51-56 refer to Edward Arlington Robinson's Many Are Called

The Lord Apollo, who has never died Still holds alone his immemorial reign, Supreme in an impregnable domain That with his magic he has fortified; And though melodious multitudes have tried (5) In ecstasy, in anguish, and in vain, With invocation sacred and profane To lure him, even the loudest are outside. Only at unconjectured intervals, By will of him on whom no man may gaze, (10) By word of him whose law no man has read, A questing light may rift the sullen walls, To cling where mostly its infrequent rays Fall golden on the patience of the dead.

- 51. The form chosen for the poem is the
  - A. English sonnet.
  - B. Italian sonnet.
  - C. Spenserian sonnet.
  - D. Miltonic sonnet.
  - E. caudate sonnet.

52. Title notwithstanding, the poem's content rests on a

- A. Shakespearean allusion.
- B. historical allusion.
- C. topical allusion.
- D. biblical allusion.
- E. classical allusion.
- 53. The dominant trope of line 12 is
  - A. antimetabole.
  - B. simile.
  - C. personification.
  - D. antithesis.
  - E. chiasmus.
- 54. Thematically, the poem suggests that divine blessing is
  - A. often received without appropriate thanks.
  - B. lavished upon the loyal.
  - C. given exclusively to the deserving.
  - D. often accompanied by punishments.
  - E. fickle and unpredictable.

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- 55. The striking repetition present in lines 10-11 is achieved through
  - A. symploce.
  - B. ploce.
  - C. repartee.
  - D. repetend.
  - E. parallelism.
- 56. The use of opposites, "sacred and profane," (line7) to convey the entire range of petitions toApollo is termed
  - A. paradox.
  - B. oxymoron.
  - C. anaphora.
  - D. merism.
  - E. zeugma.

#### Items 57-60 refer to Naomi Shihab Nye's Making a Fist

We forget that we are all dead men conversing with dead men. -- Jorge Luis Borges

For the first time, on the road north of Tampico, I felt the life sliding out of me, a drum in the desert, harder and harder to hear. I was seven, I lay in the car watching palm trees swirl a sickening pattern

past the glass. (5) My stomach was a melon split wide inside my skin.

"How do you know if you are going to die?" I begged my mother.

We had been traveling for days.

- With strange confidence she answered, (10)
- "When you can no longer make a fist."

Years later I smile to think of that journey, the borders we must cross separately, stamped with our unanswerable woes. I who did not die, who am still living, (15)

still lying in the backseat behind all my questions, clenching and opening one small hand.

- A. metaphor.
- B. simile.
- C. personification.
- D. understatement.
- E. antithesis.

58. The quotation that prefaces the poem is termed an

- A. epilogue.
- B. epigraph.
- C. epitaph.
- D. epigram.
- E. epithet.
- 59. The poetic tradition to which "Making a Fist" belongs is
  - A. free verse.
  - B. epithalamium.
  - C. requiem.
  - D. occasional verse.
  - E. folk ballad.
- 60. Thematically, the poem highlights
  - A. the difficulty of overcoming trauma.
  - B. childish perceptions of death.
  - C. maternal wisdom.
  - D. the dangers of travel.
  - E. human resiliency

## Items 61-65 refer to Marilyn Nelson's Fingers Remember

- Long finghow ers, signals flow them up from tip fingerand print all the way the and (5)up arm what the neck to ever magic light takes flame so touch ignites as the palm smooths warm from one person to another, passes (10)sunlight one skin has taken in, which the other receives like thirsty soil gulps rain and infinite generations of ancestors yawn awake asking if it's time for the line miracle up a new life. They were so young, (15) to innocence is a birth gift intended all along and to be opened with love, promises, and blessing as you enter the future that only exists if you live into it. His name was John. His moving muscles formed shapes she had not met before. Green (20) time laid its fragranced landscape before them. So they entered. Married. Irene came soon. At eighteen, Gussie was widowed, with a toddler older than her youngest siblings. The family's hand opened and closed (25) in welcome. But fingers remember.
- 61. The title may be interpreted as containing
  - A. irony or symbolism.
  - B. understatement or metonymy.
  - C. personification or synecdoche.
  - D. hyperbole or metaphor.
  - E. oxymoron or irony.
- 62. Not a term that could be used to describe the poem's form is
  - A. carmen figuratum.
  - B. shaped verse.
  - C. concrete poem.
  - D. vers de circonstance.
  - E. altar poem.

63. The type of rhyme present in line 11 is best termed

- A. internal rhyme.
- B. leonine rhyme.
- C. feminine rhyme.
- D. heteromerous rhyme.
- E. oblique rhyme.

- 64. The unusual use of "miracle" as a verb (line 15) is best recognized as
  - A. antistrophe.
  - B. anastrophe.
  - C. antiphrasis.
  - D. antimetabole.
  - E. antimeria.
- 65. The "fragranced landscape" (line 21) ultimately proves to be
  - A. satirical.
  - B. comical.
  - C. understated.
  - D. ironic.
  - E. paradoxical.

## SAMPLE ESSAY QUESTION

Read William Butler Yeats's "An Appointment," and offer a discussion of the central contrast presented in the poem.

#### An Appointment

Being out of heart with government I took a broken root to fling Where the proud, wayward squirrel went, Taking delight that he could spring; And he, with that low whinnying sound That is like laughter, sprang again And so to the other tree at a bound. Nor the tame will, nor timid brain, Nor heavy knitting of the brow Bred that fierce tooth and cleanly limb And threw him up to laugh on the bough; No government appointed him.

### **Teachers/Coaches:**

\*\*\*This essay question is NOT part of the VCM Test\*\*\* It is only being provided for additional student practice as they prepare for District

		ANSWE	R SHEET	
VCM Literary (	riticism	Items 31-65	2 points each	grade level
V CIVI Enterary Criticishi		31		
÷		32		
		33		SCORE
Items 1-30	1 point each	34		
		35		
1		36		
2		37		
3		38		
4		39		
5		40		The thirty items in Part 1
6		41		are worth one point each.
7		42		The twenty items in Part 2
8		43		are worth two points each.
9.		44.		The fifteen items in Part 3
10.		45.		are worth two points each.
11				
11		46		FIRST GRADER
12		47		number correct x 1
13		48		+ number correct x 2
14		49		
15		50		=
16		51		
17		52		initials
18		53		SECOND GRADER
19		54		number correct x 1
20		55		+
21		56		number correct x 2
22		57		=
23		58		
24		59		initials
25		60		THIRD GRADER
26		61		number convect $\mathbf{v}$ 1
27		62		+
28		63		number correct x 2
29		64		=
30		65		

initials

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Literary Cri	ticism T	l'est	33	D	30	lines for ease
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			35	D	96	
1.	D	9	36.	D	42-3	
2.	D	250	37.	A	15	
3.	Е	558-60	38.	D	106	
4.	В	499	39.	C	182	
5.	Е	453	40.	E	60-1	The thirty items in Part 1
6.	D	601	41.	В	99	are worth one point each.
7.	D	7	42.	А	71	The twenty items in Part 2
8.	Е	455	43.	В	80	are worth two points each.
9.	А	485	44.	А	43	The fifteen items in Part 3
10.	В	539	45.	А		are worth two points each.
11.	D	479	46.	Е		DO NOT
12.	А	574-6	47.	Е		mark (cross out)
13.	D	534-6	48.	Е	294	mark the answer NUMERAL.
14.	А	229	49.	D		
15.	С	276	50.	Е		
16.	В	347	51.	В	269	
17.	В	447	52.	Е		
18.	С	51	53.	С	361	
19.	Е	64	54.	Е		
20.	Е	428	55.	Е	351	
21.	А	221	56.	D	293	
22.	D	251	57.	А	294-5	
23.	D	171	58.	В	178	
24.	А	350	59.	А	209	
25.	D	550	60.	Е		
26.	А	221	61.	С	361, 470	
27.	С	6	62.	D	494	
28.	В	362	63.	А	255	
29.	Е	257	64.	Е	31	I
30.	А	608	65.	D	259	



# 2023-2024 HS VIRTUAL CHALLENGE MEET #4



# MATHEMATICS

DO NOT OPEN TEST UNTIL TOLD TO DO SO

The Virtual Challenge Meets<sup>TM</sup>

- 1. John and Julie met for dinner at the Brazilian Steakhouse in Dallas. Their total bill including 8.25% tax and a 15% pre-tax tip was \$100.40. Julie added an additional tip of 5% on the pre-tax/tip total. How much additional tip did Julie leave?
  - (A) \$4.07 (B) \$5.02 (C) \$3.85 (D) \$3.96 (E) \$4.37
- 2. Archer City's high school math team signed up to sell concessions at a home basketball game. They sold Frito pies for \$5 each and chili dogs for \$2.75 each. If they sold 253 items for a total of \$954.50, how many chili dogs did they sell?
  - (A) 115 (B) 122 (C) 138 (D) 131 (E) 128

3-6. Consider points A(-4,-5), B(-4,2), C(3,0) and D(5,-5).

3. Which of the following is an equation of line  $\overline{AC}$ ?

(A) 5x-7y=15 (B) 5x+7y=-15 (C) 7x-5y=15 (D) 7x+5y=-15 (E) 5x-7y=3

- 4. Which of the following points is on the perpendicular bisector of BC.
  - (A) (-18,6) (B) (-5,-1.5) (C) (4,3.5) (D) (0.5,4.5) (E) (-11,4)
- 5. What is the area of quadrilateral ABCD?
  - (A) 46.5 (B) 47 (C) 47.5 (D) 48 (E) 48.5
- 6. What is the perimeter of quadrilateral ABCD? (nearest tenth)
  - (A) 27.6 (B) 28.3 (C) 28.7 (D) 28.9 (E) 29.3

7. When  $3x^3 - 4x^2 + 2x - 7$  is divided by x - 3, the remainder is\_\_\_\_\_.

- (A) 58 (B) 47 (C) 67 (D) 53 (E) 44
- 8. Consider four consecutive odd numbers. The sum of the first and third is 158. What is the sum of the second and fourth?
  - (A) 158 (B) 160 (C) 162 (D) 164 (E) 166
- 9. The Coronado High School theater group sold 261 tickets to their Valentines program, and brought in a total of \$1706. They sold children's tickets for \$5.00 each, adult tickets for \$8.50 each and senior tickets for \$4.00 each. If they sold twice as many senior tickets as children's tickets, how many adult tickets did they sell?
  - (A) 82 (B) 123 (C) 118 (D) 138 (E) 127
- 10. John and Paul can clear a large lot together in 10 hours. If John can clear the lot himself in 18 hours, how long would it take Paul to clear the lot by himself? (nearest tenth)
  - (A) 18 hr (B) 19.5 hr (C) 20.5 hr (D) 21 hr (E) 22.5 hr

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- 11. Given:  $f(x) = 3x^2 8$  and  $h(x) = e^x 4$ . f(h(2)) =\_\_\_\_\_. (nearest hundredth)
  - (A) 26.46 (B) 26.72 (C) 27.85 (D) 27.92 (E) 28.13
- 12. A family monthly meal budget is directly related to the number of sons living at home and inversely related to the square root of the number of meals the family eats at home during the month. The Smiths have 4 sons and ate 81 meals at home last month. They spent \$533.33 on meals. The Taylors have 3 sons and ate 72 meals at home last month. How much did they spend on meals? (nearest cent)
  - (A) \$415.32 (B) \$419.17 (C) \$424.26 (D) \$428.71 (E) \$429.12
- 13. Carla's commuted to work five mornings last week. Her average speeds each day were 52 mph, 47 mph, 56 mph, 50 mph and 45 mph. Carla's average speed for the entire week was \_\_\_\_\_mph? (nearest tenth)
  - (A) 50.0 (B) 49.9 (C) 49.8 (D) 49.7 (E) 49.6
- 14-16. The perimeter of triangle ABC is 68 cm and the ratio of sides is 4:5:8. AB < BC < AC. Triangle DEF is similar to triangle ABC and DE = 3.2 cm.
- 14. The area of triangle ABC is \_\_\_\_\_cm<sup>2</sup>. (nearest tenth)
  - (A) 128.9 (B) 129.3 (C) 129.7 (D) 130.9 (E) 131.2
- **15.** The area of triangle DEF is \_\_\_\_\_cm<sup>2</sup>. (nearest tenth)
  - (A) 4.9 (B) 5.2 (C) 5.5 (D) 5.7 (E) 6.1

16. The length of the longest median of triangle DEF is \_\_\_\_\_cm. (nearest tenth)

- (A) 5.1 (B) 5.2 (C) 5.4 (D) 5.5 (E) 5.6
- 17. What is the length of the longest straight rod that will fit completely in an open box that is a cube with side lengths of 3 feet?
  - (A)  $3\sqrt{6}$  ft (B)  $3\sqrt{3}$  ft (C) 6 ft (D) 9 ft (E)  $3\sqrt{2}$  ft
- 18. The illustration shown is a quadrilateral inscribed in a circle. If  $\overline{AC}$  is a diameter and AB = AC, what is the probability that a dart landing randomly in the circle would land in the shaded region? (nearest hundredth)
  - (A) 0.54 (B) 0.43 (C) 0.87 (D) 0.38 (E) 0.59



- 19. The total surface area of a regular tetrahedron is  $108\sqrt{3}$  cm<sup>2</sup>. What is the perimeter of one face of the tetrahedron? (nearest tenth)
  - (A) 31.2 cm (B) 15.6 cm (C) 9 cm (D) 10.4 cm (E) 18 cm

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- 20. A circle is inscribed in a square, then a square inscribed in the circle, then a circle is inscribed in the smaller square followed by a square inscribed in the smallest square and so on as illustrated. If this pattern is continued infinitely and one side of the largest square is 4 inches, what is the sum of the areas of all the squares.
  - (A)  $\frac{32}{3}$  in<sup>2</sup> (B) 24 in<sup>2</sup> (C) 16 in<sup>2</sup> (D) 32 in<sup>2</sup> (E)  $\frac{64}{3}$  in<sup>2</sup>
- 21. The total surface area of the right triangular prism shown is \_\_\_\_\_mm<sup>2</sup>. (nearest whole number)
  - (A) 16,870 (B) 17,388 (C) 19,096 (D) 94,976 (E) 17,612
- 22.  $\overline{\text{EC}}$  divides triangle ABD into two polygons with equal area. AB:EC =\_\_\_





53 mm

. 128 mm

28 mm

23-24. The measure of an interior angle of a regular polygon is 140°. The length of each side is 4 cm.23. Find the area of the polygon. (nearest whole number)

- (A) 93 cm<sup>2</sup>
  (B) 95 cm<sup>2</sup>
  (C) 97 cm<sup>2</sup>
  (D) 99 cm<sup>2</sup>
  (E) 100 cm<sup>2</sup>

  24. If the polygon is inscribed in a circle, find the area of the circle. (nearest whole number)
- (A)  $104 \text{ cm}^2$  (B)  $107 \text{ cm}^2$  (C)  $95 \text{ cm}^2$  (D)  $99 \text{ cm}^2$  (E)  $101 \text{ cm}^2$

25. Which of the following is NOT a solution for  $f(x) \ge \left|25 - \sqrt{x^2}\right|$ ?

 $(A) \quad (4,21) \qquad (B) \quad (0,30) \qquad (C) \quad (9,14) \qquad (D) \quad (-8,18) \qquad (E) \quad (-3,22)$ 

26. Given f(x) = 2x + 5 and  $g(x) = x^3 - 1$ , find g(f(x)).

- (A)  $8x^3 + 10x^2 + 50x + 125$  (B)  $8x^3 + 60x^2 + 150x + 124$  (C)  $8x^3 + 124$
- (D)  $8x^3 + 20x^2 + 50x + 124$  (E)  $8x^3 + 125$

- 27. The relative intensity of a sound is calculated using the formula  $\beta = 10\log\left(\frac{I}{I_0}\right)$  where  $\beta$  is the relative intensity in dB, I is the intensity of sound in watts per square meter and  $I_0$  is the threshold of hearing, which has a value of  $10^{-12}$  watts per square meter. The noise level inside the gym during Coach Arnold's PE class is 65 dB. If the intensity of Coach Arnold's velling is 584 times as great, what is the relative intensity of Coach Arnold's yell? (nearest whole number) (A) 87 dB (B) 89 dB (**C**) 91 dB (D) 93 dB **(E)** 95 dB 28. The height, in feet, above the ground of a Ferris Wheel seat after t seconds as it circles is given by  $h(t) = 65 + 60\sin\left(\frac{\pi t}{18} - \frac{\pi}{2}\right)$ . If the operator starts the Ferris Wheel at t = 0 s and stops at t = 140 s, how far did the seat travel? (nearest foot) (A) 733 ft (C) 1466 ft **(E)** (B) 1283 ft (D) 1502 ft 1563 ft 29.  $\sin^4 \theta + 2\cos^2 \theta \sin^2 \theta + \cos^4 \theta =$ 
  - (A)  $\sin\theta \sec\theta$  (B)  $\sin\theta \csc\theta$  (C)  $\cos\theta \csc\theta$  (D)  $\tan^2\theta$  (E)  $\sin\theta \cos\theta$
- **30.** Find the angle between the vectors u = 4i 7j and v = 8i + 3j. (nearest tenth)
  - (A) 80.8° (B) 80.2° (C) 79.3° (D) 78.6° (E) 78.1°

31-32. The 2<sup>nd</sup> term of an arithmetic sequence is 27 and the 8<sup>th</sup> term is 72.

**31.** Find the first term of the sequence.

(A) 19.5 (B) 12 (C) 7.5 (D) 15.5 (E) 17

32. Find the sum of the first 12 terms.

- (A) 684 (B) 774 (C) 752 (D) 771 (E) 729
- **33.** How many three-digit numbers can be formed if the number is at least 600 and doesn't include 0 as a digit?
  - (A) 333 (B) 315 (C) 318 (D) 324 (E) 336
- 34. What is the digit in the tens place in the sum: 1!+2!+3!+4!+5!.....+45! ?
  - (A) 0 (B) 1 (C) 2 (D) 3 (E) 4
- **35.** The harmonic mean of two integers is one less than their arithmetic mean. The larger number is twice the smaller. What is the larger number?
  - (A) 18 (B) 16 (C) 12 (D) 8 (E) 6

36. Determine the equation of the directrix of the parabola  $x^2 = -4y$ .

- (A) y = -4 (B) y = 1 (C) y = -1 (D) y = 4 (E) x = 1
- 37. Find the distance between P(-5,6,-3) and the plane 8x 3y + 4z = -12. (nearest tenth)
  - (A) **5.9** (B) **6.1** (C) **6.3** (D) **6.5** (E) **6.7**
- 38. Which of the following will produce the same graph in the Cartesian plan as the polar equation  $r = 5\cos\theta$  does in the polar coordinate system?
  - (A)  $x^2 + y^2 = 5$  (B)  $(x 2.5)^2 + y^2 = 6.25$  (C)  $x^2 + y^2 = 6.25$
  - (D)  $(x-2.5)^2 + y^2 = 5$  (E)  $x^2 + (y-2.5)^2 = 5$
- **39.** Ilia would like to put \$10,000 of her savings in a CD rather than risk it in the stock market. She would like to have \$16,500 at the end of 10 years, and all of the CDs she is considering compound monthly. What is the minimum interest rate that Ilia should consider? (nearest tenth of a percent)
  - (A) 4.2% (B) 5.2% (C) 4.8% (D) 4.6% (E) 5.0%
- 40-41. Consider an ellipse with foci (-4,6) and (-4,-8), and with a major axis length of 16.
- 40. Find the eccentricity of the ellipse. (nearest hundredth)
  - (A) 0.88 (B) 0.83 (C) 0.85 (D) 0.90 (E) 0.81
- 41. Find the area of the ellipse. (nearest whole number)
  - (A) 91 (B) 93 (C) 95 (D) 97 (E) 99

42. What is the area of the largest isosceles triangle that can be inscribed in the circle  $x^2 + y^2 + 4x + 6y - 3 = 0$ ? (nearest whole number)

(A) 18 (B) 9 (C) 11 (D) 26 (E) 21

43. Use Euler's Method with h = 0.25 to estimate y(1) if y(0) = 4, and y'(t) = 3y. (nearest hundredth)

(A) 37.27 (B) 37.52 (C) 37.77 (D) 38.06 (E) 38.31

44. What is the *x*-coordinate of the *x*-intercept of the line tangent to  $f(x) = \sqrt{3x^2 - 2}$  at (3,5)?

(A)  $-\frac{1}{9}$  (B)  $\frac{2}{9}$  (C)  $-\frac{2}{5}$  (D)  $\frac{1}{3}$  (E)  $-\frac{1}{5}$ 



- (A) 5:7 (B) 5:12 (C) 7:15 (D) 1:2 (E) 1:1
- 52. A satellite has ten solar power cells. There is a 60% chance that a single cell will fail in the first five years of operation. If the satellite needs at least two functional cells to continue operating, what is the probability that the satellite will be operational at the end of five years? (nearest hundredth)
  - (A) 0.83 (B) 0.99 (C) 0.95 (D) 0.98 (E) 0.12

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- 53. How many distinct arrangements can be made for eleven people sitting at a round table if two of them are a couple who must sit together?
  - (A) 3,628,800 (B) 7,257,600 (C) 39,916,800 (D) 725,760 (E) 362,880
- 54-56. Dr. Martin assigns integer scores of 0 through 5 for students' final exam projects. Based on results from 1000 students, Dr. Martin created the table below. Define *X* to be the score on the final exam project for a randomly selected student.

Score	0	1	2	3	4	5
Probability	0.08	0.18	0.22	0.28	0.16	р

- 54. What is the probability that a randomly selected student will earn a 5 on the project?
  - (A) 0.08 (B) 0.06 (C) 0.12 (D) 0.10 (E) 0.13
- **55.** Compute the mean of the random variable *X*. (nearest hundredth)
  - (A) 2.35 (B) 2.48 (C) 2.50 (D) 2.54 (E) 2.62

56. Compute the standard deviation of the random variable X. (nearest thousandth)

- (A) 1.210 (B) 1.217 (C) 1.253 (D) 1.326 (E) 1.375
- 57. The probability that Lynn will get a multiple-choice question right is 0.2 by randomly guessing. If she guesses on every question on a 15-question quiz, what is the probability that she will make 30% or higher? (nearest hundredth)
  - (A) 0.43 (B) 0.06 (C) 0.84 (D) 0.94 (E) 0.16
- 58. A survey asked 800 graduating seniors to name their favorite teacher. From the sample, 42% selected Mr. Dodson. Construct a 90% confidence interval for the proportion of all graduating seniors who would select Mr. Dodson as their favorite teacher. (nearest ten-thousandth)
  - (A) (.3903,.4477) (B) (.3913,.4487) (C) (.3923,.4487) (D) (.3913,.4497) (E) (.3923,.4497)

59-60. After practicing each week, Carl took a number sense test every Friday afternoon with his coach after school. The table below shows Carl's scores on his Friday tests for 6 weeks.

Week	1	2	3	4	5	6
Score	156	175	188	204	222	240

- **59.** When Carl plotted his data, he believed a linear model fit his data pretty well. Use a linear model to predict Carl's score in week 8. (nearest whole number)
  - (A) 272 (B) 264 (C) 268 (D) 273 (E) 275

60. If Carl actually scored a 260 on his seventh Friday, what was the residual for week 7? (nearest integer)

(A) 5 (B) 4 (C) -5 (D) -3 (E) 3

2023-2024 Virtual Challenge Meet #4 Mathematics - Page 7

## 2023-2024 Virtual Challenge Meet #4 Contestant Name\_\_\_\_\_Grade\_\_\_\_ Mathematics – Student Answer Sheet Grade\_\_\_\_\_

lathematics – Student Answer S	sneet		
		Score 1:	Score 2:
		Score 3:	Final Score:
1	21		41
2	22		42
3	23		43
4	24		44
5	25		45
6	26		46
7	27		47
8	28		48
9	29		49
10	30		50
11	31		51
12	32		52
13	33		53
14	34		54
15	35		55
16	36		56
17	37		57
18	38		58
19	39		59
20	40	(	50

#### 2023-2024 VIRTUAL CHALLENGE MEET #4 MATHEMATICS - KEY

1.	Α	21. B	41. D
2.	С	22. A	<b>42.</b> E
3.	Α	23. D	43. B
4.	D	24. B	<b>44.</b> B
5.	В	25. C	45. B
6.	С	26. B	<b>46.</b> E
7.	Ε	27. D	47. A
8.	С	28. C	48. D
9.	D	29. B	<b>49.</b> C
10.	Ε	30. A	50. B
11.	Α	31. A	51. A
12.	С	32. E	<b>52.</b> C
13.	D	33. D	53. D
14.	D	34. B	54. A
15.	В	35. C	55. C
16.	Α	36. B	56. E
17.	В	37. B	57. E
18.	Ε	38. B	58. B
19.	Α	39. E	59. A
20.	D	40. A	60. A

#### The Virtual Challenge Meets Number Sense Test • HS VCM #4 • 2023-2024

Name						_		Final		
School								2 <sup>nd</sup>		
Grade	9	10	11	12				1st		
Classification:	Α	2A	3A	4A	5A	6A			Score	Initials
Read directions ca before beginning	arefully test			D		UNFOLD THIS	SHEET GIN			

**Directions**: Do not turn this page until the proctor gives the signal to begin. This is a ten-minute test. There are 80 problems. Solve accurately and quickly as many as you can in the order in which they appear. ALL PROBLEMS ARE TO BE SOLVED MENTALLY without the help of paper, pencil, or calculator. Write only the answer in the space provided at the end of each problem. Problems marked with an (\*) require approximate integral answers; any answer to a problem with an *asterisk* that is within five percent of the exact answer will be scored correct; all other problems require exact answers.

#### **STOP – WAIT FOR SIGNAL!**

(1) 2024 – 2317 =	
(2) $27^2 = $	
(3) $25.5 \div \frac{1}{4} =$	
(4) $4\frac{2}{3} - 1\frac{5}{6} = $ (mixed)	l number)
(5) 213579 ÷ 5 has a remainder of	
(6) $43\frac{1}{3}\% =$	(fraction)
(7) $168 \times \frac{3}{8} =$	
(8) MMXXIV ÷ IV = (Arabic	Numeral)
(9) $(11+19) \times 5 \div (5^2 - 15) =$	
*(10) 1724 - 1999 + 2387 =	
(11) 18% of 250 is	
(12) 109 × 106 =	
(13) 35 × 46 =	
(14) $86^2 - 35^2 = 17 \times$	
(15) $1993 \times 12 - 12 \times 93 =$	
(16) $\frac{19}{17} \times 21 =$ (mixed)	l number)
(17) 1+3+5++23=	
( <b>18</b> ) <b>1</b> + <b>3</b> + <b>5</b> + ··· + <b>31</b> =	

(19) If $1 + 3 + 5 + \dots + n =$
$(1 + 3 + 5 + \dots + 23) + (1 + 3 + 5 + \dots + 31)$
then <i>n</i> =
*(20) 14387 + 2024 × 5! =
(21) If $\frac{17}{33} = 0.$ ababab, then a + b =
(22) Round $\sqrt{5}$ to the nearest hundredth place
(23) $78 \times 38 =$
(24) If $\frac{19}{30} = 0. abbbb \dots$ , then $a + b =$
(25) $[3+8\times7-k]\div6$
has a remainder of 4, where 0 < <i>k</i> < 6. <i>k</i> =
(26) 1 mile =feet
(27) 1 mile + 300 yards = feet
(28) 1 mile + 300 yards + 5 fathoms =feet
(29) Let $R = \{r, a, i, d, e, s\}$ . How many
two member subsets of R are there?
*(30) \sqrt{422398} =
(31) 2384 × 16 + 256 =
(32) 0.1414 + .282828 =(fraction)
(33) $7B9 = [3(11 - B)]^2$ . Find B, B > 0.
(34) If $f(x) = x^3 + 3x^2 + 3x + 1$ , then $f(7) = 1$

(35) Given 1, 1, 3, 5, 6, 12, 10, p, q, p + q =
$(36) 14^2 + 28^2 = \_$
(37) Three numbers are in the ratio of 3:4:5. If their sum is 84, then the largest number is
(38) $5\frac{11}{15} \times 15\frac{2}{5} =$ (mixed number)
(39) Let $\frac{x+18}{x-7} + \frac{x-7}{x+18} = 2\frac{B}{c}$ . Find B
*(40) $\sqrt[3]{2200} \times \sqrt{2200} =$
(41) The number of numbers between 1 and 26 which are relatively prime to 26 is
<ul><li>(42) How many integers between</li><li>20 and 135 are divisible by 9?</li></ul>
(43) The positive geometric mean of 4, 8, and 16 is
(44) The geometric mean of the roots of $4x^2 - 15x + 9 = 0$ is
$(45) \ 65^2 + 44^2 = \_$
(46) 809 <sup>2</sup> =
(47) The coefficient of the $x^2y^4$ term of $(6x - y)^6$ is
(48) $6^5 - 3 =$ (base 6)
(49) $52_9 + 55_9 = 3$
*(50) 31 <sup>3</sup> =
(51) $(11^3 - 4^3) \div (11 - 4) =$
(52) 1465 <sub>7</sub> ÷ 11 <sub>7</sub> has a remainder of
(53) If $f(x) = x - log_8 x$ , then $f(16) =$
(54) 65 <sub>8</sub> = (base 2)
(55) If $\sqrt{55 - \sqrt{9\sqrt{22 - x}}} = 7$ , then $x = $
(56) Four pennies are tossed in the air. Find the probability of two pennies showing tails.
(57) $23^2 + 17^2 =$
(58) If the sides of an equilateral triangle are $6\sqrt{3}$ inches long, then the altitude isinches

(59) Let $9\frac{6}{m} \times n\frac{2}{5} = 42$ , where <i>m</i> , <i>n</i>
are natural numbers. Find <i>mn</i> .
*(60) $32^3 \div 16^2 \times 2^7 =$
(61) $\sqrt{121_9} =9$
(62) 0.4545 <sub>7</sub> =(base 7 fraction)
(63) If $\left(\sqrt[4]{a^9}\right)\left(\sqrt[3]{a^5}\right) = \sqrt[n]{a^k}$ , where n and k
are relatively prime, then n + k =
(64) 8 rods =feet
(65) $\tan^2\left(\frac{4\pi}{3}\right) =$
(66) The seventh pentagonal number is
(67) Let $A = \begin{bmatrix} 3 & 4 \\ -2 & 6 \end{bmatrix}$ . Find $ A $
(68) The perimeter of a square is
decreased from 28 to 12. Find
((a) a 2 a 2 a 2 a 2 a 2 a 2 a 2 a 2 a 2 a
(69) $x + 2y = -2$ and $5x - y = 12$ . $x =$
*(70) 375 mi <sup>2</sup> =acres
(71) If $f(x) = \frac{3}{5} - \frac{2}{3}x$ and $f^{-1}(x) = ax + b$ , then $b = $
(72) Let $g(x) = 2 \sin^2 x$ . Find $g'\left(\frac{\pi}{4}\right) =$
(73) Find $x, 7 \le x \le 13$ , if $2x - 5 \cong 4 \pmod{7}$ .
(74) $h(x) = 2x^2 - 12x + 5$ has a local minimum at (a, b). $a + b =$
(75) $1^2 - 2^2 + 3^2 - 4^2 + \dots + 31^2 =$
(76) The y-intercept of the tangent line to $f(x) = -0.5x^2 + 8x - 14$ at (4, 10) is
(77) $\int_{3}^{5} (6x^2) dx = .$
(78) $f(x) = 7 - x^2$ and $g(x) = 15x + 3$ , then $g(f(-2)) =$
(79) 222 × 432 =
*(80) 625 × (44.44% × 36.3636) =

## The Virtual Challenge Meets Number Sense Test Key • HS VCM #4 • 2023-2024

(1) – 293	(19) 39	(35) 37	(59) 44
(2) 729	*(20) 244404 - 270130	(36) 980	*(60) 15565 - 17203
(3) 102	(21) 6	(27) 25	(61) 11
(4) $2\frac{5}{6}$	(22) 2.24	(37) 35	(62) $\frac{14}{22}$
(5) 4	(23) 2964	$(38) 88 {75}$	
(6) $\frac{13}{13}$	(24) 9	(39) 625	(63) 59
30	(25) 1	*(40) 580 - 640	(64) 132
(7) 63	(25) 1 (26) 5280	(41) 11	(65) 3
(8) 506	(20) 5280	()	(66) 70
(9) 15	(27) 0180	(42) 12	(67) 26
*(10) 2007 – 2217	(20) 0210	(43) 8	
(11) 45	(29) 15		(68) 40
(12) 11554	*(30) 618 - 682	(44) 1.5, $1\frac{1}{2}$ , or $\frac{3}{2}$	(69) 2
(13) 1610	(31) 38400	(45) 6161	*(70) 228000 – 252000
(14) 363	$(32) \frac{14}{33}$	(46) 654481	(10) 220000 202000
(15) 22800	(33) 2	(47) 540	(71) <sup>9</sup> or .9
(16) $23\frac{8}{17}$	(34) 512	(48) 55552	
(17) 144		(49) 10121	(72) 2
(18) 256		*(50) 28302 - 31280	(73) 8
		(51) 181	(74) – 10
		(52) 2	(75) 496
		(53) $14\frac{2}{2}$ or $\frac{44}{2}$	
		3 3 (54) 110101	(76) - 6
		(55) 6	(77) 196
			(78) 48
		(56) $\frac{3}{8}$ or .375	(79) 95904
		(57) 818	*(80) 9596 - 10606

# 2023-2024 VCM #4 <u>PILOT</u> COPY EDITING CONTEST

This test should be graded, using the 2022-2024 Associated Press Stylebook, 56th edition, in print or updated on or before June 1, 2022, online.

Students may use the AP Stylebook, dictionary and/or thesaurus during the exam.

Points from PART 1

Points from PART 2

POINTS/15

POINTS/10

**TOTAL POINTS** 

DO NOT TURN THIS PAGE UNTIL YOU ARE INSTRUCTED TO DO SO!

## **RECOMMENDED EDITING MARKS**

Students should use clearly understood editing symbols. Students will NOT be penalized for using other symbols. It is up to the judges to determine if marks are "clearly understood." The hurricane made landfall near the indent for paragraph small town of Thompsonville. It brought with paragraph it a powerful storm surge. no paragraph High winds battered the transpose the Parken Daniel company use figures over a period of thirty-seven weeks spell out a group of Bsuspects abbreviate former Governon Perry attended don't abbreviate The Tex organization uppercase president javier milei said lowercase celebrated Shakespearean Actor remove space the snow man building contest insert space the island of Cuba ignore correction the leader in his field insert word The weather likely to improve delete a meeting Ws Monday insert comma insert apostrophe insert quotation marks insert period insert hyphen insert dash Spelling errors should be corrected, not simply marked for correction.
## 2023-2024 VCM <u>Pilot</u> Copy Editing Contest

#### **DIRECTIONS:** Write all your responses as indicated. You have 15 minutes.

#### Part 1: Circle the correct response. (1 pt. each)

- 1. The scientist expressed hope that the terraforming being developed to make Mars habitable might be used on **earth** / **Earth** in case of a climate catastrophe.
- 2. The speaker called on the audience to lose / loose no time in advocating for change.
- 3. The captain pointed to a small flag flying on the yacht's **right / starboard** side.
- 4. Their flagship store is located at **7 Fifth Ave. / 7 Fifth Avenue / 7 5th Avenue.**
- 5. All models come equipped with **air bags / airbags**.
- 6. The plane crash was linked to faulty components in the **motor / engine.**
- 7. He was deemed unfit for the job and it's / its responsibilities.
- 8. Guthrie, who has / suffers from multiple sclerosis, gave the keynote address.
- 9. The event will run from 4:00-6:00 p.m. / 4-6 p.m. / 4 p.m. 6 p.m.
- 10. Asian nations are opening their doors to Western / western businesses.
- 11. They announced plans to remodel the womens / women's / womens' restroom.
- 12. One of the most popular novels on high school reading lists is "The Great Gatsby" / *The Great Gatsby.*
- 13. The workers consult a 26-step checklist to **insure / ensure** accuracy.
- 14. The odds were **3-2 / three-two / 3 to 2**.
- 15. The bride wore an **offwhite / off white / off-white** gown.

Part 2: Edit the following sentences to eliminate/correct four (and only four) errors in wordiness, AP style, grammar, spelling or punctuation in each of the five statements below. Use clearly understood editing symbols. Spelling errors should be corrected, not simply marked for correction. Judges will consider only the first four corrections marked. Any others will be ignored. Compound errors will be considered as one error. (2 pts. each)

0	1/2	1	11⁄2	2	1. Lysol's label claims the product elimenates 99 percent of
					disease causing microbes, including viruses, bacteria, and parasites

- 0 <sup>1</sup>/<sub>2</sub> 1 1<sup>1</sup>/<sub>2</sub> 2
   2. Many teachers claim the standards are to rigoruous for students' in primary school. Educators plan to express there concerns in a series of protests.
- 0 <sup>1</sup>/<sub>2</sub> 1 1<sup>1</sup>/<sub>2</sub> 2
   3. The intensity 7.6 earthquake struck Honshu, Japan leaving more than 120 people dead. Rescuers pulled a ninety-three-year-old surviver from the rubble five days after the quake.
- 0 <sup>1</sup>/<sub>2</sub> 1 <sup>1</sup>/<sub>2</sub> 2
   4. 4. The January 27 groundbreaking ceremony attracted a crowd of more then 400. The project includes additional handicapped parking and upgrades to facilities to help the homeless.
- $0 \frac{1}{2} 1 \frac{1}{2} 2$  5. "We had been lost for twelve days." said hiker Chuck Thompson. "The relief we felt when we saw the helicopter was indescribible."

## 2023-2024 VCM #4 - Copy Editing Key

NAME \_\_\_\_

## Copy Editing Contest Pilot Test

#### DIRECTIONS: Write all your responses as indicated. You have 15 minutes.

Part 1: Circle the correct response. (1 pt. each)

- 1. The scientist expressed hope that the terraforming being developed to make Mars habitable might be used on **earth Earth** in case of a climate catastrophe.
- 2. The speaker called on the audience to loose no time in advocating for change.
- 3. The captain pointed to a small flag flying on the yacht' **(right)** starboard side.
- 4. Their flagship store is located at Fifth Ave. / 7 Fifth Avenue / 7 5th Avenue.
- 5. All models come equipped with air bags airbags.
- 6. The plane crash was linked to faulty components in the motor / engine
- 7. He was deemed unfit for the job and it's (its responsibilities.
- 8. Guthrie, who(has) suffers from multiple sclerosis, gave the keynote address.
- 9. The event will run from 4:00-6:00 p.m. (4-6 p.m.) 4 p.m. 6 p.m.
- 10. Asian nations are opening their doors to Western / western businesses.
- 11. They announced plans to remodel the womens women's womens' restroom.
- 12. One of the most popular novels on high school reading lists is "The Great Gatsby" The Great Gatsby.
- 13. The workers consult a 26-step checklist to insure (ensure) accuracy.
- 14. The odds were (-2) three-two / 3 to 2.
- 15. The bride wore an offwhite / off white /off-white gown.

Part 2: Edit the following sentences to eliminate/correct four (and only four) errors in wordiness, AP style, grammar, spelling or punctuation in each of the five statements below. Use clearly understood editing symbols. Spelling errors should be corrected, not simply marked for correction. Judges will only consider the first four corrections marked. Any others will be ignored. Compound errors will be considered as one error. (2 pts. each)

0	1/2	1	11/2	2	1. Lysol's label claims the product <del>climenates</del> 99 percent of			
					disease causing microbes, including viruses, bacteria and parasites.			
0	1/2	1	1 1/2	2	2. Many teachers claim the standards are to rigorous for students in primary school. Educators plan to express there concerns in			
					a series of protests.			
0	1/2	-	1 1/2	2	3. The intensity 7.6 earthquake struck Honshu, Japan leaving more than 120 people dead. Rescuers pulled a sinety-three year-old surviver from			
					the rubble five days after the quake.			
0	1/2	1	11/2	2	4. The anuar 27 groundbreaking ceremony attracted a crowd of more than accessible then 400. The project includes additional handisapped parking and * homeless people upgrades to facilities to help the homeless.			
0	1/2	1	1½	2	5. "We had been lost for welve days," said hiker Chuck Thompson "The relief we felt when we saw the helicopter was indescribible."			
					indescribable			
*( wi	*Other acceptable corrections for "the homeless" are "people without housing" or "people without homes."							

## VCM <u>Pilot</u> Copy Editing—Quick Start Guide

## **Conducting the Contest**

- I. Students have <u>only</u> 15 minutes.
- II. Students may refer to a printed "AP Stylebook" and a dictionary. NO web-based resources are allowed.
- III. For part 1, students simply circle the correct choice.
- IV. For part 2, students should edit the sentences using clearly understood proofreading marks. They are <u>not</u> required to use the recommended marks.
- V. On part 2, students should make four, and only four, corrections to each sentence.

## **Grading the Contest**

- I. For part 1, each correct item earns one point.
- II. For part 2, the student's intent must be clear. If the grader cannot confidently say that the student intended a particular correction, it should not be given credit.
- III. Give credit only for the first four marks. A fifth (or subsequent) correction <u>cannot</u> be awarded points, even if it's right.
- IV. Each correction on part 2 is worth .5 points, for a total of 2 pts. per sentence. Circle the correct number of points earned in each sentence in the scoring area to the left of each item.
- V. If the grader thinks there is an error on the key, or if a student has made a seemingly valid correction that is not on the key, email Chuck Thompson (<u>cthompson1313@gmail.com</u>) and follow VCM procedures for a key challenge.
- VI. The student's final score is a total of Part 1 and Part 2. A perfect score is 25 (15 pts. on Part 1 + 10 pts on Part 2).
- VII. Unlike the VCM Copy Editing Test, the UIL Copy Editing Test includes a <u>mandatory</u> tiebreaker. See the UIL Journalism Handbook and the UIL website for more information.



# 2023-2024 HS VIRTUAL CHALLENGE MEET#4



# SCIENCE

## DO NOT OPEN TEST UNTIL TOLD TO DO SO

The Virtual Challenge Meets<sup>TM</sup>

#### **Biology Questions (B1-B20)**

- B01. The probability of getting two dominant traits for the following genetic cross of fruit flies would be RrEeWw x RREeWw
  - A) 15/16.
  - B) 7/16.
  - C) 56/64.
  - D) 1/4.
- B02. Proteins that are no longer needed after production may be tagged with
  - \_\_\_\_\_ for degradation.
  - A) methyl
  - B) ubiquitin
  - C) H1
  - D) leucine
- B03. Common transcription factors found in prokaryotes include with of the following?
  - A) helix turn helix
  - B) leucine zipper
  - C) zinc fingers
  - D) helix turn helix
- B04. What is true of mitochondrial structures?
  - A) linear chromosomes and free ribosomes
  - B) nucleosomes and attached ribosomes
  - C) circular chromosome and free ribosomes
  - D) plasmids and linear chromosomes
- B05. The CDC issued a recall on charcuterie meats due to contamination by *Salmonella*\_\_\_\_\_.
  - A) enteritids
  - B) St. Paul
  - C) I 4:1
  - D) kimabu

- B06. B is a dominant black allele and b is a brown recessive allele. B shows complete dominance, but can be controlled by recessive epistatic gene, e. Which of the following genetic crosses would yield a genetically black, phenotypically white offspring?
  - A) BbEE x BBEE
  - B) BBEe x BbEE
  - C) bbee x bbEe
  - D) BbEe x Bbee
- B07. The contracting region of a muscle fiber is known as a(n)
  - A) sarcomere.
  - B) synapse.
  - C) neuromuscular junction.
  - D) areolar.
- B08. The 5'-3' DNA strand is also known as the
  - A) negative strand.
  - B) template strand.
  - C) sense strand.
  - D) non-coding strand.
- B09. Non-Enterobacteriaceae are typically
  - A) gram positive and oxidase positive.
  - B) gram negative and oxidase negative.
  - C) oxidase positive and non-glucose fermenters.
  - D) catalase positive and glucose fermenters.
- B10. Long term storage is fungi is typically in the form of
  - A) starch.
  - B) cellulose.
  - C) glycogen.
  - D) lipids.

- B11. Which is a true statement regarding the nitrogen cycle?
  - A) nitrogen fixation is anoxic
  - B) denitrification takes ammonia and converts it into nitrogen gas
  - C) nitrification converts nitrates to ammonia
  - D) complete ammonia oxidation converts ammonia directly to nitrogen gas
- B12. A distinguishing feature of dicots from monocots would include
  - A) vascular tissue.
  - B) developed root system.
  - C) fleshy fruit.
  - D) secondary growth.
- B13. Mechanical isolation is a \_\_\_\_\_\_ barrier and gametic isolation is a \_\_\_\_\_\_barrier.
  - A) pre-zygotic; post-zygotic
  - B) pre-zygotic; pre-zygotic
  - C) post-zygotic; pre-zygotic
  - D) post-zygotic; post-zygotic
- B14. What percent of a population is homozygous dominant if the frequency of homozygous recessive individuals is 0.17?
  - A) 17.6%
  - B) 34.5%
  - C) 41.2%
  - D) 58.7%
- B15. In humans, an individual having 46 chromosomes, 22 autosome pairs and 1 sex chromosome pair is called
  - A) euploidy.
  - B) aneuploidy.
  - C) monoploidy.
  - D) polyploidy.

- B16. Scientists can build a more complete profile of various species in a lake without sampling actual organisms by the use of
  - A) quarter sampling.
  - B) eDNA testing.
  - C) water column testing.
  - D) random sampling.
- B17. The high influx of sodium ions in a neuron marks the \_\_\_\_\_ stage.
  - A) hyperpolarization
  - B) action potential
  - C) depolarization
  - D) repolarization
- B18. The movement of sister chromatids during anaphase requires what chemical to be degraded that holds them together?
  - A) securin
  - B) anaphase promoting complex
  - C) separase
  - D) cohesin
- B19. The release of lactic acid, ethanol, and CO<sub>2</sub> by certain bacterial species is what type of fermentation?
  - A) homolactic acid
  - B) heterolactic acid
  - C) butyric acid
  - D) acetic acid
- B20. Which of the following is correctly matched?
  - A) prokaryotic small ribosome-18S
  - B) eukaryotic small ribosome-30S
  - C) prokaryotic large ribosome-50S
  - D) eukaryotic large ribosome-70S

#### Chemistry Questions (C1 – C20)

- C1. A reaction mechanism is usually
  - A) identical to the balanced equation
  - B) obvious if the reaction order is known
  - C) obvious is the activation energy is known
  - D) difficult to prove
  - E) two of the choices are correct
- C2. How much energy is needed to convert 10.0 grams of ice at  $-20.0^{\circ}$ C to liquid water at  $60.0^{\circ}$ C?
  - A) 420. J D) 3300 J B) 2900 J E) 7.50 kJ
  - C) 6300 J
- C3. The element gallium has a first ionization energy of 579 kJ/mol. Which of the following is a plausible set of quantum numbers for the electron removed in the first ionization?
  - A) 4, 0, 0, -1/2 B) 3, 1, 0, -1/2 C) 4, 1, 0, +1/2 D) 3, 1, 1, +1/2 E) 4, 2, 1, +1/2 E) 4, 2, 1, +1/2
- C4. If the absolute temperature of a sample of oxygen gas is doubled and the pressure is quadrupled, by what factor does the sample volume change?

A)	8	D) 1/4
B)	2	E) 1/8
C)	1/2	

C5. What mass of nitrogen is contained in 7.5 grams of calcium nitrate?

A) 0.64 g	D) 1.2 g
B) 1.3 g	E) 2.3 g
C) 0.15 g	

C6. How many liters of oxygen at STP are needed to combust 0.100 mole of stearic acid (C18H36O2)?
A) 58 2 J

A) 58.2 L	D) 38.1 L
B) 60.5 L	E) 78.4 L
C) 40.3 L	

C7. Given the following data, what is the standard enthalpy of formation for gaseous ethene (C<sub>2</sub>H<sub>4</sub>)? C<sub>2</sub>H<sub>4</sub>(g) + 3 O<sub>2</sub>(g)  $\rightarrow$  2 CO<sub>2</sub>(g) + 2 H<sub>2</sub>O(l)  $\Delta$ H<sup>o</sup> = -1411 kJ C(s) + O<sub>2</sub>(g)  $\rightarrow$  CO<sub>2</sub>(g)  $\Delta$ H<sup>o</sup> = -393.5 kJ H<sub>2</sub>(g) + <sup>1</sup>/<sub>2</sub> O<sub>2</sub>(g)  $\rightarrow$  H<sub>2</sub>O(l)  $\Delta$ H<sup>o</sup> = -285.8 kJ

A) 52.4 kJ	D) 1410 kJ
B) 87.0 kJ	E) - 2090 kJ
C) 732 kJ	

- C8. It requires 40 s for an unknown gas to effuse. What is the approximate molar mass of the unknown if it requires 16 s for oxygen gas to effuse under the same experimental conditions?
  - A) 5 g/mol
     D) 100 g/mol

     B) 12 g/mol
     E) 200 g/mol
  - C) 80 g/mol
- C9. Which of the following is not a true statement?
  - A) Ground state Ne is diamagnetic.
  - B) The 2s orbital is larger than the 1s orbital for all atoms.
  - C) According to DeBroglie's equation, the wavelength associated with particle motion increases as the particle mass decreases.
  - D) An electron in a 3s orbital could have a value of 1 for its angular momentum quantum number (*l*).
  - E) All of the statements are true.
- C10. How many sigma and pi bonds are in the following molecule?

~0.

- A) 7 pi, 3 sigma
- B) 3 pi, 11 sigma
- C) 4 pi, 19 sigma
- D) 4 pi, 25 sigma
- E) 4 pi, 23 sigma

C11. What is the molality of an aqueous

- ammonium sulfate solution that is known to be 20.0% by mass? (Solution density = 1.12 g/mL)
- A) 0.0152 m D) 1.89 m B) 1.52 m E) 2.19 m
- C) 1.65 m
- C12. Select the response that includes only those of the following that are properties of most metals.
  - 1. Tend to form anions
  - 2. Good heat conductors
  - 3. Greater than 4 valence electrons
  - 4. Tend to form ionic compounds with group 17 elements
  - A) 1 and 3
  - B) 2 and 4
  - C) 1, 2 and 4
  - D) 3 and 4
  - E) 2 and 3
- C13. A mineral is known to contain barium carbonate and no other compounds that react with acids. If a 1.68 gram sample of the mineral reacted with 24.6 mL of 0.2558 M hydrochloric acid, what was the percent by mass of barium carbonate in the mineral sample?

A) 73.8 %	D) 23.4 %
B) 36.9 %	E) 13.5 %
C) 62.1 %	

- C14. Which of the following elements would be expected to have the most negative electron affinity?
  - A) GermaniumB) IodineC) Chloring
  - C) Chlorine
- C15. What is the Ksp for iron(II) hydroxide at 20 C if its solubility at that temperature is 3.00 mg in 2.00 liters of solution?
  - A)  $1.86 \times 10^{-14}$ B)  $1.49 \times 10^{-13}$ C)  $9.31 \times 10^{-15}$ D)  $4.66 \times 10^{-15}$ E)  $1.05 \times 10^{-14}$

- C16. Which of the following factors does not affect the forward rate of reaction?
  - A) Temperature
  - B) Presence of a catalyst
  - C) Concentration of reactants
  - D) Physical state of solid reactants
  - E) All of the choices can affect the rate of the forward reaction
- C17. Consider a voltaic cell associated with the following reaction where a standard hydrogen electrode is connected by a salt bridge and wire to an electrode made of Cd metal in a 1 M Cd(NO<sub>3</sub>)<sub>2</sub> solution:  $Cd(s) + 2 H^+(aq) \rightarrow H_2(g) + Cd^{2+}(aq)$

When the cell produces current, electrons flow through the wire from the \_\_\_\_\_ electrode to the \_\_\_\_\_ electrode and the \_\_\_\_\_ electrode is the cathode.

A) Cd, H <sub>2</sub> , Cd	D) Cd, H <sub>2</sub> , H <sub>2</sub>
B) $H_2$ , Cd, Cd	E) None are correct
C) H <sub>2</sub> , Cd, H <sub>2</sub>	

- C18. Which produces a neutral solution in water?
  - A) NaC2H3O2D) NaCNB) NaOC1E) NaNO3C) NaF
- C19. The partial pressure of chlorine gas in a system at equilibrium is found to be 0.340 atm. If the system is at 10°C, what is the molar concentration of the chlorine gas?
  A) 0.414 M D) 0.279 M
  B) 0.0146 M E) 7.90 M
  C) 6.82 M
- C20. A student carries out a reaction with 10.0 g of aluminum metal and 100. mL of 6.00 M H<sub>2</sub>SO<sub>4</sub>. After recovering, washing and drying the product, they measure 40.2 g of aluminum sulfate. The percent yield of the reaction was about

A) 40.0 %	D) 50 %
B) 60.0 %	E) 100 %
C) 80.0 %	

### Physics Questions (P01 – P20)

- P01. According to Guillen, this English physician was the first to "discover that the two ends of a magnet always behaved differently; he called them the north pole and the south pole." He also suggested that "The entire earth was a magnet... complete with its own two poles."
  - A) Thomas Young
  - B) Robert Hooke
  - C) William Gilbert
  - D) Henri Cavendish
  - E) Michael Faraday
- P02. According to Guillen, in 1800, this physicist "invented a device that could produce a steady flow of electricity... his device consisted of stacking, like poker chips, disks of copper and zinc, separated by disks of cardboard moistened with saltwater." They were called "piles."
  - A) Pieter van Musschenbroek
  - B) Charles Coulomb
  - C) Luigi Galvani
  - D) Andre Ampere
  - E) Alessandro Volta
- P03. According to Guillen, in 1820, this physicist "discovered that an electric current caused the needle of a compass to move slightly, as if the electric current itself were behaving like a magnet."
  - A) Hans Orsted
  - B) Dominique Arago
  - C) Jens Jacobsen
  - D) Joseph Fourier
  - E) Sophie Germain
- P04. Given that the observed peak of the Sun's spectrum is 500 nm, use Wein's Law to estimate the surface temperature of the Sun.
  - A) 5600 K
  - B) 5800 K
  - C) 6000 K
  - D) 6200 K
  - E) 6400 K

- P05. 46.7 Mm = \_\_\_\_\_ nm. A)  $4.67 \times 10^{13}$ B)  $4.67 \times 10^{14}$ C)  $4.67 \times 10^{15}$ D)  $4.67 \times 10^{16}$ E)  $4.67 \times 10^{17}$
- P06. The punter for the Gruver Greyhounds kicked the football against the Booker Fighting Kiowas. The ball left his foot 86.5 cm above the ground, at a speed of 22.0 m/s, and at an angle of 46.6° above the horizontal. If the return man let the ball hit the ground, how far from the punter did the ball hit the ground?
  - A) 45.7 m B) 46.8 m C) 47.9 m D) 49.0 m E) 50.1 m



- P07. When the 1.50-kg block is released, the 3.00-kg block accelerates across the tabletop at 1.45 m/s<sup>2</sup>. Find the coefficient of sliding friction between the tabletop and the 3.00-kg block. Assume that the pulley is frictionless and massless.
  - A) 0.278 B) 0.298 C) 0.318 D) 0.338
  - E) 0.358

- P08. A 1250-kg car is traveling up a road that is inclined at 8.25° above the horizontal. The car's speed is a constant 90.0 km/h. There is a constant retarding force of 725 N as the car travels on the road. Find the minimum power required.
  - A) 79.0 hp
  - B) 81.1 hp
  - C) 83.2 hp
  - D) 85.3 hp E) 87.4 hp



- P09. A 6.00-m-long ladder leans against a wall at a point 4.80 m above the ground. The ladder is uniform and has a mass of 14.0 kg. The base of the ladder is 3.60 m from the wall. Assume that there is no friction between the ladder and the wall. The coefficient of static friction between the ground and the base of the ladder is 0.425. How far up the ladder can a 60.0-kg person climb without the ladder slipping?
  - A) 3.38 m
  - B) 3.49 m C) 3.60 m
  - D) 3.71 m
  - E) 3.82 m
  - L) 5.62 III
- P10. The siren of a police car at rest emits sound at a frequency of 1550 Hz. The police car is chasing a speeder on I-20. If the police car is traveling at 150 km/h and the speeder is traveling at 120 km/h, what frequency does the driver of the speeding vehicle hear? The air temperature is 20.0°C.
  - A) 1550 Hz
  - B) 1570 Hz
  - C) 1590 Hz
  - D) 1610 Hz
  - E) 1630 Hz

P11. Des has a cabin near Flathead Lake in Montana. The cabin has a big glass window with a view of the lake. The window measures 2.22 m by 1.11 m and is 1.35 cm thick. On a cool summer morning, the temperature outside was  $6.00^{\circ}$ C and the temperature inside was  $20.0^{\circ}$ C. Find the rate of heat flow through the glass window.  $(k = 0.84 \text{ J/(s} \cdot \text{m} \cdot \text{C}^{\circ}))$ 

A) 2070 J/s B) 2090 J/s C) 2110 J/s D) 2130 J/s E) 2150 J/s



- P12. If the current flowing through the  $150-\Omega$  resistor is 0.415 A, find the value of R.
  - A) 209 Ω
  - B) 220 Ω
  - C) 231 Ω
  - D) 242 ΩE) 253 Ω
  - E) 233 52
- P13. Two point charges are separated by a distance of 24.0 cm. One has a charge of 360 nC and the other has a charge of -480 nC. Point P is between the points, on a line connecting the point charges, 8.00 cm from the negative charge. Find the magnitude of the electric field at P. A) 548,000 N/C
  B) 611,000 N/C
  C) 675,000 N/C
  D) 738,000 N/C
  E) 801,000 N/C

P14. A thin 18.0-cm-long solenoid has a total of 750 turns of wire and carries a current of 4.00 A. Find the magnetic field inside, near

the center.

- A) 20.9 mT
- B) 22.0 mT C) 23.1 mT
- D) 24.2 mT
- E) 25.3 mT



- P15. A metal rod makes contact with two parallel wires and completes the circuit. The circuit is perpendicular to a 1.25-T magnetic field coming up out of the page. The resistance is 24.0  $\Omega$ . If the rod moves at a constant speed of 1.22 m/s to the right, find the current induced in the circuit.
  - A) 21.8 mA
  - B) 22.9 mA
  - C) 24.0 mA
  - D) 25.1 mA
  - E) 26.2 mA



- P16. A converging lens with a focal length of 18 cm is placed in contact with a diverging lens with a focal length of -24 cm. What is the focal length of the combination?
  - A) -72 cm
  - B) -36 cm
  - C) –6 cm
  - D) 36 cm
  - E) 72 cm

- P17. Consider a metal target with a work function of 2.4 eV. What is the threshold wavelength of light that can cause photoelectric emission from the target?
  A) 495 nm
  B) 506 nm
  C) 517 nm
  D) 528 nm
  - E) 539 nm

#### P18. Complete the beta decay reaction.

<sup>23</sup><sub>12</sub>Mg  $\rightarrow$  <sup>23</sup><sub>11</sub>Na + \_\_\_\_+  $\nu_e$ A)  $\gamma$ B)  $e^-$ C)  $\overline{\nu}_e$ D)  $e^+$ E)  ${}_2^4$ He



Compression of Spring (mm)



- P19. Nathan was doing a lab in which he released a 400-g mass at various heights above a vertical spring. He recorded and plotted the heights as well as the compression of the spring. Use the table above to find the spring constant of the spring.
  - A) 400 N/m
  - B) 700 N/m
  - C) 1000 N/m
  - D) 1300 N/m
  - E) 1600 N/m



20. The capacitors are both uncharged at t = 0. The switch is closed at t = 0. The Find the current in the circuit at t = 12.0 s. A) 217 mA
B) 318 mA
C) 419 mA
D) 520 mA
E) 621 mA

1A 1	Chemistry												8A 18				
1 H 1.01	2A 2	_										за 13	4A 14	5A 15	6A 16	7A 17	2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.81	6 C 12.01	7 N 14.01	8 0 16.00	9 F 19.00	10 Ne 20.18
11 Na 22.99	12 Mg 24.31	3B 3	4B 4	5B 5	6B	7B 7	8		10	1B 11	2B 12	13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
39.10	40.08	44.96	47.87	50.94	52.00	54.94	55.85	58.93	58.69	63.55	65.38	69.72	72.64	74.92	78.96	79.90	83.80
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te		Xe
85.47	87.62	88.91	91.22	92.91	95.94	(98)	101.07	102.91	106.42	107.87	112.41	114.82	118.71	121.76	127.60	126.90	131.29
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Cs	Ba	La	Hf	Ta	W	Re	Os	lr	Pt	Au	Hg	TI	Pb	Bi	Po	At	Rn
132.91	137.33	138.9	178.49	180.95	183.84	186.21	190.23	192.22	195.08	196.97	200.59	204.38	207.20	208.98	(209)	(210)	(222)
87	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og
(223)	(226)	(227)	(261)	(262)	(266)	(264)	(277)	(268)	(281)	(281)	(285)	(286)	(289)	(289)	(293)	(293)	(294)

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
140.1	140.9	144.2	(145)	150.4	152.0	157.3	158.9	162.5	164.9	167.3	168.9	173.0	175.0
90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
232.0	231.0	238.0	(237)	(244)	(243)	(247)	(247)	(251)	(252)	(257)	(258)	(259)	(262)

#### Constants

- 0.08206 L·atm/mol·K R =
- $R = 8.314 \text{ J/mol} \cdot \text{K}$
- $R = 62.36 \,\mathrm{L\cdot torr/mol\cdot K}$

 $e = 1.602 \times 10^{-19} \text{ C}$   $N_{\text{A}} = 6.022 \times 10^{23} \text{ mol}^{-1}$ 

- $k = 1.38 \times 10^{-23} \text{ J/K}$   $h = 6.626 \times 10^{-34} \text{ J} \cdot \text{s}$
- $= 3.00 \times 10^8 \text{ m/s}$ С  $\mathcal{R} = 2.178 \times 10^{-18} \,\mathrm{J}$
- $m_{\rm e} = 9.11 \times 10^{-31} \, \rm kg$

#### Water data

 $= 0^{\circ}C$  $T_{\rm mp}$  $T_{\rm bp}$  $= 100^{\circ}C$ = 2.09 J/g KCice = 4.184 J/g KCwater  $C_{\text{steam}}$ = 2.03 J/g K= 334 J/g $\Delta H_{\rm fus}$ = 2260 J/g $\Delta H_{\rm vap}$  $K_{\rm f}$ = 1.86 °C/m  $K_{\rm b}$ = 0.512 °C/m

## PHYSICS

### Useful Constants

quantity	symbol	value
Free-fall acceleration	g	$9.80 \text{ m/s}^2$ or $32.174 \text{ ft/s}^2$
Coulomb constant	k	8.99 x $10^9$ N·m <sup>2</sup> /C <sup>2</sup>
Electron mass	me	9.11 x 10 <sup>-31</sup> kg
Fundamental charge	e	1.602 x 10 <sup>-19</sup> C
Speed of light in a vacuum	с	3.00 x 10 <sup>8</sup> m/s
Permeability of free space	μο	$4\pi \ge 10^{-7} \text{ T} \cdot \text{m/A}$
Planck's constant	h	6.626 x 10 <sup>-34</sup> J·s
Gravitational constant	G	6.67 x $10^{-11}$ N·m <sup>2</sup> /kg <sup>2</sup>
Permittivity of free space	ε	8.854 x 10 <sup>-12</sup> C <sup>2</sup> /N·m <sup>2</sup>
Electron volt	eV	1.602 x 10 <sup>-19</sup> J
Horsepower	hp	746 W
Atmosphere	atm	1.013x10 <sup>5</sup> Pa
Density of water	ρ	1000 kg/m <sup>3</sup>
Rydberg constant	R	1.097 x 10 <sup>7</sup> m <sup>-1</sup>

## The Virtual Challenge Meets Science Contest Answer Sheet

Conference	Grade Level	Contestant #
Biology	Chemistry	Physics
B01	C01	P01
B02	C02	P02
B03	C03	P03
B04	C04	P04
B05	C05	P05
B06	C06	P06
B07	C07	P07
B08	C08	P08
B09	C09	P09
B10	C10	P10
B11	C11	P11
B12	C12	P12
B13	C13	P13
B14	C14	P14
B15	C15	P15
B16	C16	P16
B17	C17	P17
B18	C18	P18
B19	C19	P19
B20	C20	P20
B Score	C Score	P Score
Grader Initials	OVE	RALL SCORE

## 2023 – 2024 HS Virtual Challenge Meet #4 Science – Answer Key

(REVISED - 2/13/2024)

B01.	A	C01. D	P01. C
B02.	В	C02. C	P02. E
B03.	A or D	C03. C	P03. A
B04.	С	C04. C	P04. B
B05.	С	С05. В	P05. D
B06.	D	C06. A	P06. E
B07.	А	C07. A	P07. A
B08.	С	C08. E	P08. C
B09.	С	C09. D	P09. B
B10.	С	C10. E	P10. C
B11.	А	C11. D	P11. E
B12.	D	С12. В	P12. D
B13.	В	С13. В	P13. E
B14.	В	C14. C	P14. A
B15.	А	C15. A	P15. B
B16.	В	C16. E	P16. E
B17.	С	C17. D	P17. C
B18.	D	C18. E	P18. D
B19.	В	C19. B	P19. E
B20.	С	C20. B	P20. A

### 2023 – 2024 HS Virtual Challenge Meet #4 Science – Selected Solutions

C2. 
$$(10.0)(2.09)(20.0) + (10.0)(334) + (10.0)(4.18)(60.0) = 6266 \text{ J}$$

C5.  $7.5g \ Ca(NO_3)_2\left(\frac{28 \ g \ N_2}{164 \ g}\right) = 1.3 \ g$ 

C6.  $C_{18}H_{36}O_2 + 26 O_2 \rightarrow 18 CO_2 + 18 H_2O$  0.100 mol(26) = 2.6 mol oxygen 2.6 mol (22.4 L/mol) = 58 L

C7. +1411 + (2)(-393.5) + (2)(-285.8) = 52.4 kJ

C8. 
$$\frac{\frac{1}{16}}{1/40} = \frac{\sqrt{MM}}{\sqrt{32}}$$
 MM = 200 g/mol

C11. 
$$\frac{20.0g \, (NH_4)_2 SO_4}{80.0 \, g \, H_2 O} \left(\frac{mol}{132 \, g}\right) \left(\frac{1000g}{kg}\right) = 1.89 \, m$$

- C13. BaCO<sub>3</sub> + 2 HCl  $\rightarrow$  BaCl<sub>2</sub> + H<sub>2</sub>O + CO<sub>2</sub> (0.0246 L)  $\left(0.2558 \frac{mol}{L}\right) \left(\frac{1 \ mol \ BaCO_3}{2 \ mol \ HCl}\right) \left(\frac{197 \ g}{mol}\right) = 0.620 \ g$ 0.620 g / 1.68 g = 36.9 %
- C15. Fe(OH)<sub>2</sub>(s)  $\leftrightarrows$  Fe<sup>2+</sup> + 2 OH<sup>-</sup> S = 0.003  $g\left(\frac{mol}{89.9 g}\right)\left(\frac{1}{2 L}\right) = 1.67 x 10^{-5} M$  Ksp =  $[Fe^{2+}][OH^{-}]^2 = (S)(2S)^2 = 4S^3$ Ksp =  $1.86 x 10^{-14}$
- C19. PV=nRT P = (n/V)RT = MRT (0.340) = (M)(0.0821)(283) M = 0.0146 mol/L
- C20.  $2 \text{ Al} + 3 \text{ H}_2\text{SO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + 3 \text{ H}_2$  Al = 10.0g/27 = 0.37 mol (limiting)  $H_2\text{SO}_4 = (0.100 \text{ L})(6.00 \text{ M}) = 0.600 \text{ mol}$   $0.37 \text{ mol}\left(\frac{1}{2}\right)\left(\frac{342 \text{ g}}{\text{mol}}\right) = 63.3 \text{ g Al}_2(SO_4)_3 \text{ theoretical}$ 40.2/63.3 = 64 % yield

#### SELECTED SOLUTIONS

P01-P03 Five Equations that Changed the World, Michael Guillen, Hyperion, New York, 1995

- P01. page 135; William Gilbert, an English physician, was the first to "discover that the two ends of a magnet always behaved differently; he called them the north pole and the south pole." He also suggested that "The entire earth was a magnet... complete with its own two poles."
- P02. page 139; in 1800, Alessandro Volta "invented a device that could produce a steady flow of electricity... his device consisted of stacking, like poker chips, disks of copper and zinc, separated by disks of cardboard moistened with saltwater." They were called "piles."
- P03. page 149; in 1820, Hans Orsted "discovered that an electric current caused the needle of a compass to move slightly, as if the electric current itself were behaving like a magnet."

P04. 21st Century Astronomy: Kay, Palen, Smith, Blumenthal, W.W. Norton & Co., New York, 2013, page 141; T =  $\frac{2,900,000 \text{ nm} \cdot \text{K}}{\lambda} = \frac{2,900,000}{500} = 5800 \text{ K}$ 

$$\lambda_{\text{peak}} = 500$$

P05. 
$$\frac{46.7 \times 10^{6}}{1 \times 10^{-9}} = 4.67 \times 10^{16}$$
P06. 
$$\frac{y = y_{0} + v_{0}t + .5at^{2}}{x = x_{0} + v_{0}t + .5at^{2}}$$
P07. 
$$\frac{T = 12.525}{T - \mu Mg = Ma}$$
$$\frac{12.525 - \mu(3)(9.8) = (3)(1.45)}{\mu = 0.278}$$

$$P = Fv = (mg \sin \theta + F_{R})v \qquad F_{w} = F_{f} = umg = (.425)(14 + 60)(9.8)$$

$$P = ((1250)(9.8) \sin(8.25^{\circ}) + 725) \left(\frac{90}{3.6}\right) PO9. r_{I}F_{w} \sin \theta = r_{2}mg \sin \alpha + r_{3}Mg \sin \alpha$$

$$P = 62,069.6154847 \div 746 \qquad (6)(308.21) \left(\frac{4.8}{6}\right) = (3)(14)(9.8) \left(\frac{3.6}{6}\right) + r(60)(9.8) \left(\frac{3.6}{6}\right)$$

$$r = 3.49 m$$

P10. 
$$f' = f\left(\frac{v \pm v_0}{v \mp v_s}\right) = 1550\left(\frac{343 - 33.\overline{3}}{343 - 41.\overline{6}}\right)$$
  
 $f' = 1590 \text{ Hz}$ 

$$\frac{dQ}{dt} = kA\left(\frac{T_1 - T_2}{L}\right)$$
P11.  $\frac{dQ}{dt} = (.84)(1.11)(2.22)\left(\frac{20 - 6}{.0135}\right)$   
 $\frac{dQ}{dt} = 2150 \text{ J/s}$ 

$$V_{3} = (.415)(150) = 62.25$$

$$\frac{1}{R_{1}} = \frac{1}{60} + \frac{1}{90} \rightarrow 36,$$

$$E = \frac{kq}{r^{2}}, E_{1} = \frac{\left(8.99 \times 10^{9}\right)\left(480 \times 10^{-9}\right)}{(.08)^{2}} = 674,250 \text{ left}$$
P12. 
$$V_{1} = (.415)(36) = 14.94$$

$$V_{2} = 120 - V_{1} - V_{3} = 42.81$$

$$42.81 = .415R_{2} \rightarrow 103.1566...$$

$$\frac{1}{R_{2}} = \frac{1}{180} + \frac{1}{R} \rightarrow 242 \Omega$$
P13. 
$$E_{2} = \frac{\left(8.99 \times 10^{9}\right)\left(360 \times 10^{-9}\right)}{(.16)^{2}} = 126,421.875 \text{ left}$$

$$E_{1} + E_{2} = 801,000 \text{ N/C}$$

P14. 
$$B = \frac{\mu_0 NI}{L} = \frac{(4\pi \times 10^7)(750)(4)}{.18}$$
  
B = .0209 T \rightarrow 20.9 mT 
$$\xi = BLv = (1.25)(.36)(1.22)$$
  
P15.  $\xi = .549$   
$$I = \frac{\xi}{R} = \frac{.549}{.24} = .0229 \text{ A} \rightarrow 22.9 \text{ mA}$$

$$\frac{hc}{\lambda} = \phi$$
16.  $f = \frac{f_1 \cdot f_2}{f_1 + f_2} = \frac{(18)(-24)}{18 - 24}$ 
 $f = 72 \text{ cm}$ 

$$\frac{hc}{\lambda} = \phi$$
P17.  $\lambda = \frac{(6.626 \times 10^{-34})(3 \times 10^8)}{(2.4)(1.602 \times 10^{-19})}$ 
P18.  $e^+$ 
 $\lambda = 5.17 \times 10^{-7} \text{ m} \rightarrow 517 \text{ nm}$ 

$$\begin{array}{l} 1 \\ (50, 52) \\ \text{P19.} \quad \begin{array}{l} \frac{1}{\text{C}} = \frac{1}{240} + \frac{1}{240} \rightarrow \text{C} = 120 \\ \text{mgh} = .5\text{kx}^2 \\ (.4)(9.8)(.5 + .052) = (.5)\text{k}(.052)^2 \\ \text{k} = 1600 \text{ N/m} \end{array} \qquad \begin{array}{l} \text{P20.} \quad \text{I} = \frac{\xi}{\text{R}} \cdot e^{\frac{-\text{t}}{\text{RC}}} = \frac{120}{240} \cdot e^{\frac{-12}{(120 \times 120 \times 10^{-3})}} \\ \text{I} = 0.217 \text{ A} \rightarrow 217 \text{ mA} \end{array}$$



## 2023 – 2024 Virtual Challenge Meet #4 Social Studies

Modern South Asia: People, Places, and Politics, 1857 to Present



## Do not open until told to do so

The Virtual Challenge Meets<sup>™</sup>

## Social Studies directions

- 1. Answer all 45 questions independently in a maximum of 90 minutes. There is no penalty for guessing in this event.
- 2. The questions are divided into three categories, totaling up to 80 points possible for each individual's objective score.
  - a. Questions 1 20 are worth one (1) point each, covering individuals and general knowledge terms
  - b. Questions 21 35 are worth two (2) points each and are based on Country Profiles from the CIA's The World Factbook, BBC News Country Profiles, and Infoplease
- 3. Questions 36 45 are worth three (3) points each and are based on Primary Reading Selection Book: *His Majesty's Opponent: Subhas Chandra Bose and India's Struggle Against Empire*
- 4. Use capital letters when answering on the answer document.
- 5. Students compete individually and as a team if a school has three or more testers in the subject.
- 6. The top three scores from your school will compose your team score for a maximum score of 240 points.

## 2023 – 2024 Virtual Challenge Meet #4 Social Studies

## Modern South Asia: People, Places, and Politics, 1857 to Present

#### Part I: Key Terms & General Knowledge (1) point each

- 1. The \_\_\_\_\_\_ separates the Andaman Islands and Nicobar Islands from each other in the Bay of Bengal. These two together form one of the eight Indian Union Territories.
  - A. Cox's Bazar C. Palk Strait
  - B. Java Trench D. Ten Degree Channel

2. *Hind Swaraj*, or "Indian Home Rule," was published by \_\_\_\_\_\_ in South Africa in 1909.

- A. Jawaharlal Nehru C. Subhas Chandra Bose
- B. Mohandas K. Gandhi D. Swami Vivekananda
- 3. Paradesi Jews immigrated from \_\_\_\_\_\_ to the Indian subcontinent beginning in the late 15<sup>th</sup> century.
  - A. Syria C. Spain
  - B. Poland D. Egypt
- The Kot Massacre occurred on September 14, 1846, when members of the Kunwar family killed approximately 30 to 40 civilians, military officers, and palace guards, including the Prime Minister of \_\_\_\_\_\_.
  - A. Nepal C. India
  - B. Ceylon (Sri Lanka) D. Bhutan

- A. Mohammad Nawaz Sharif C. Pervez Musharraf
- B. Zulfikar Bhutto D. Hussain Shaheed Sharwardi
- Home to some 17 percent of the world's tigers and 30 percent of the world's Asian elephants
- Also called the Sahyadri, they form one edge of the Deccan plateau
- Headwaters of several important rivers, including the Krishna, Godavari, and Kaveri Rivers
- One of the best examples of the monsoon system on earth
- 6. Which Geographic feature is described above?
  - A. Eastern Ghats C. Western Ghats
  - B. Indo-Gangetic Plain D. Patkai Range
- 7. Known as the "Flying Sikh," \_\_\_\_\_\_ finished fourth in the finals of the 400-meter race at the 1960 Summer Olympics in Rome.
  - A. Atal Bihari Vajpayee C. Milkha Singh
  - B. Dhyan Chand D. Imran Khan
  - Spoken in Pakistan and Northern India, two variants of it are official languages in their respective countries
  - Encouraged by Mahatma Gandhi as a way to unite India
  - The third most spoken language in the world
- 8. Which of the following is described above?
  - A. Hindustani C. Pashtun
  - B. Punjabi D. Bangla
- 9. Which of the following geographic features does *not* touch the Palk Strait?
  - A. Bay of Bengal C. Adam's Bridge
  - B. Mannar Island D. Kund Malir Beach
- 10. Mangal Pandey is most associated with the \_\_\_\_\_.
  - A. Salt March C. Sepoy Mutiny
  - B. Sino-Indian War D. Sikh Massacre

- 11. The important rice-producing region of Puducherry was formed in 1962 out of four former colonies of \_\_\_\_\_ India.
  - A. French C. British
  - B. Portuguese D. Mughal
  - I. The annexation of Goa removed the Portuguese from India
  - II. The Gawkadal Massacre occurred when Indian troops opened fire on Kashmiri protesters
  - III. Operation Polo began when the Indian military annexed the state of Hyderabad
  - IV. The Kargil Conflict erupted in the districts of Jammu and Kashmir
- 12. Rank the events listed above chronologically, beginning with the earliest.
  - A. I, IV, III, II
     C. II, III, I, IV

     B. II, III, IV, I
     D. III, I, II, IV
- 13. Which of the following is *not* one of the Five Ks of Sikhism?

A.	Kesh – uncut hair	C.	Kanga – wooden comb
B.	Kirpan – steel sword	D.	Karabakh – overcoat

14. Several decades after he administered the transfer of power from Britain to the newly independent nations of India and Pakistan, Lord Mountbatten was assassinated in 1979 by terrorists from who planted a bomb on his boat.

- A. Kashmir C. Afghanistan
- B. Ireland D. Catalan
- 15. Madurai Shanmukhavadivu Subbalakshmi was the first \_\_\_\_\_\_ ever to be awarded India's highest civilian honor, the Bharat Ratna.
  - A. astronaut C. musician
  - B. politician D. writer
- 16. Sometimes called "the Nightingale of India," \_\_\_\_\_\_ was the first Indian woman to be President of the Indian National Congress.
  - A. Pratibha Patil C. Indira Gandhi
  - B. Sarojini Naidu D. M.S. Subbalakshmi

- 17. Regarded as one of the greatest political personalities of \_\_\_\_\_\_, B.P. Koirala was a staunch supporter of democracy and the country's first democratically elected Prime Minister.
  - A. Pakistan C. Bhutan
  - B. Nepal D. Sri Lanka

18. After being overthrown from his second term as the Prime Minister, \_\_\_\_\_ was tried and convicted for hijacking and terrorism and agreed to leave Pakistan for ten years in exchange for having his jail sentence commuted and going into exile in Saudi Arabia.

- A. Pervez Musharraf C. Zulfikar Bhutto
- B. Imran Khan D. Nawaz Sharif
- 19. Throughout the upper course of the \_\_\_\_\_\_, it is generally known as the Tsangpo, which means "Purifier," and also by its Chinese name Yarlung Zangbo.
  - A. Brahmaputra River C. Indus River
  - B. Ganges River D. Irrawaddy River
- 20. The Harmandir Sahib, also known as the "Golden Temple," is the chief gurdwara, or house of worship, and the most important pilgrimage site for \_\_\_\_\_\_. It is located in Amritsar, Punjab state, northwestern India.
  - A. Muslims C. Buddhists
  - B. Sikhs D. Hindus

#### Part II: Country Profiles (2) points each

#### Sources include: CIA's The World Factbook, BBC News Country Profiles, and Infoplease

- 21. In 1999, army chief \_\_\_\_\_\_ seized power in Pakistan from Prime Minister Nawaz Sharif.
  - A. Pervez Musharraf C. Imran Khan
  - B. Arif Alvi D. Mamnoon Hussain
- 22. In June 2008, a constituent assembly coined the term "Special Majlis," finalizing a new constitution a month later in \_\_\_\_\_.
  - A. Nepal C. the Maldives
  - B. Sri Lanka D. Pakistan

- I. Liberation Tigers of Tamil Eelam were founded and began their fight for Tamil rights
- II. Ceylon became a republic and changed its name to Sri Lanka
- III. Protesters forced President Gotabaya Rajapaksa out of office due to an economic crisis
- IV. Suicide attack on the international airport destroyed half the Sri Lankan Airlines fleet
- 23. Rank the above events in chronological order, beginning with the earliest.

A.	II, III, I, IV	C.	I, IV, III, II
B.	III, I, II, IV	D.	II, I, IV, III

24. Which statement below is *incorrect* concerning South Asia?

- A. India does not recognize Pakistan's ceding historic Kashmir lands to China in 1964.
- B. India's port cities include New Delhi, Chennai, Nehru, Kolkata, Mumbai, and Hyderabad.
- C. India borders six different countries.
- D. Both India and Pakistan claim to have nuclear weapons capabilities.
- 25. As co-founder of the Awami League, \_\_\_\_\_ became the president and prime minister of Bangladesh before he and most of his family were killed in 1975 by a coup d'état which brought an end to civilian rule.
  - A. Syed Ahmed Khan C. Huseyn Shaheed Suhrawardy
  - B. Mohammed Ali Jinnah D. Sheikh Mujibur Rahman
- 26. The partition of Pakistan and India along \_\_\_\_\_\_ lines resulted in the largest migration in human history, with 17 million people fleeing across the borders in both directions to escape sectarian violence.
  - A. political C. religious
  - B. geographical D. ethnic
- 27. The earliest reference to the region now known as \_\_\_\_\_\_ was to a kingdom called Vanga, or Banga, approximately 1000 B.C.
  - A. West Bengal C. Sri Lanka
  - B. Nepal D. Bangladesh
- 28. Believed to be the highest unclimbed mountain in the world, Gangkhar Puensum is the highest peak in \_\_\_\_\_.

A. India	C.	Nepal
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B. Pakistan D. Bhutan

#### 29. As of 2020, nearly 100% of Bhutan's electricity is produced by \_\_\_\_\_.

- A. wind power C. fossil fuels
- B. hydroelectric power D. solar power

30. Which of the following statements concerning the Maldives is *incorrect*?

- A. Nearly 90% of its population lives in the capital city of Male.
- B. The official religion is Islam, and the population is predominantly Sunni.
- C. Geographically, the country is the smallest Asian nation.
- D. Its highest point is approximately 30 feet above sea level on the eighth tee on a golf course.
- 31. Which statement about the region known as Kashmir *is most accurate*?
  - A. India and Pakistan have fought seven wars over the area since the partition of India.
  - B. It is located in the far northeast corner of South Asia in a majority Hindu section of India.
  - C. As of today, it is no longer a militarized zone due to China's influence and occupation of part of the region.
  - D. India, Pakistan, and China occupy the Kashmir Region of the Himalayas.

32. In 1971, \_\_\_\_\_\_\_ assisted an indigenous movement due to the marginalization of Bengalis in Pakistani politics, which resulted in East Pakistan becoming the independent nation of Bangladesh.

A. Sri Lanka C. the United Nations

B.	India	D.	. the United Stat
В.	India	D.	. the United Stat

33. Moratuwa, Negombo, Dehiwala-Mount Lavinia, and Kesbewa are major cities in \_\_\_\_\_.

A.	India	C.	Nepal
B.	Bangladesh	D.	Sri Lanka

34. All the following geographic features border part of India except -

- A. Arabian Sea C. Thar Desert
- B. Irrawaddy River D. Andaman Sea

- "Port on the River" refers to the Kelani River, which empties into the Indian Ocean
- "Harbor with mango trees"
- The Portuguese may have named the city for a famous explorer around 1505 AD
- 35. Which country's capital is described above?
  - A. India C. Sri Lanka
  - B. Bangladesh D. Pakistan

#### Part III: PRIMARY READING SELECTION (3) points each

#### His Majesty's Opponent: Subhas Chandra Bose and India's Struggle Against Empire

36. What is the significance of the date August 15, 1947?

- A. A Hindu nationalist assassinated Matamata Gandhi.
- B. Japan officially surrendered, ending World War Two.
- C. Subhas Chandra Bose succumbed to his injuries from the plane crash.
- D. India and Pakistan achieved independence from Britain.

"You had an opportunity of helping us, but you did not do so. Now Japan is offering us help and we have reason to trust her sincerity. That is why we have plunged into the struggle alongside of her. It is not Japan that we are helping by waging war on you and on our mortal enemy – England. We are helping ourselves – we are helping Asia."

- 37. Subhas Bose made a series of broadcasts from Tokyo like the one above towards \_\_\_\_\_\_, telling them that Asia was "surging with revolutionary fervor."
  - A. the United States C. the Soviet Union
  - B. Germany D. Turkey
- 38. On January 7, 1944, the advance headquarters of the Azad Hind Provisional Government was moved from \_\_\_\_\_\_ to Rangoon, Myanmar (Burma), in order to launch an invasion of Imphal and other locations in Eastern India.
  - A. Delhi C. Taipei
  - B. Saigon D. Singapore

We Indians, regardless of religious faiths, cherish the memory of \_\_\_\_\_\_, not because he was the man who gave the clarion call to his countrymen to fight the enemy from without, but because he was the man under whose flag fought Indians from all provinces, Indians professing different religious faiths, the man under whose sacred flag freedom-loving Hindus, Muslims and Sikhs fought side by side in the war that has been dubbed by English historians as the sepoy mutiny, but which we Indians call the first war of independence.

39. To signal the INA's determination to march to the Red Fort of Delhi, Bose, who is quoted above, paid his respect at the tomb of \_\_\_\_\_\_, who is also known as the last Mughal Emperor.

A.	Gobar Roja	C.	Abul Mansur Ahmed
B.	Bahadur Shah	D.	Bakht Bidar

40. Following his escape from India to Moscow, Subhas Bose had his first alcoholic drink, a glass of . "It burnt me," he confessed to his wife Emilie.

- A. tequila C. vodka
- B. cognac D. whiskey

This is perhaps the most interesting book which has yet been written by an Indian politician on Indian politics. His history of the last fourteen teen years, though written avowedly from the standpoint of the Left-Wing, Wing, is as nearly fair to all parties and everyone as can be reasonably ably expected of an active politician. He is interested in trade union movements, the peasants' revolt, and the growth of Socialism. Altogether the book leaves us with a wish to see Mr. Bose take a lead in Indian politics.

41. In the comments above, British officer J. T. Gwynne references Bose's book \_\_\_\_\_\_.

- A. Non-Violent Resistance C. Freedom at Midnight
- B. The Discovery of India D. The Indian Struggle
- 42. In 1939, Bose proposed the \_\_\_\_\_\_ for India's National Congress "as a forum for the more radical elements in the party."
  - A. Revolutionary Union C. Force Publique
  - B. Forward Bloc D. Liberation Party
- 43. Nonviolence/noncooperation was instituted as a way to fight against British colonialism when individuals were forcibly disarmed after India's defeat in \_\_\_\_\_.
  - A. 1857C. 1919B. 1914D. 1945

- 44. Subhas Bose states he was "barely fifteen" when he was introduced to writings of \_\_\_\_\_\_, whose message of service to suffering humanity and who died at the early age of thirty-nine in 1902 had inspired an entire generation.
  - A. Sahajanand Saraswati C. Swami Vivekananda
  - B. Bhagat Singh D. Chittaranjan (C.R.) Das
- 45. In March 1919, the passage of the \_\_\_\_\_\_ "transformed wartime law into peacetime legislation," giving the British the ability to hold Indians in detention without trial. Protests against this law led to the April Amritsar Massacre in Punjab.
  - A. Foreigner's Act C. Charter Act
  - B. Rowlatt Act D. Indian Press Act

## SAMPLE SOCIAL STUDIES ESSAY

Sample Essay Question:

Since the Partition of India into religious zones, Kashmir has been one of the longest, if not the longest, disputed region in the world. Regarding the controversies surrounding Kashmir, discuss the region, religious disputes, and how it continues to headline South Asian politics.

\*\*\*This essay question is <u>NOT</u> part of the VCM Test\*\*\* It is only being provided for additional student practice as they prepare for District

2023 - 2024	NAME	
Virtual Challenge	School	Division (1A–6A)
Answer Sheet	Grade	
art I (1 point each)	Part II (2 points each)	Part III (3 points each)
p to 20 points total)	(up to 30 points total)	(up to 30 points total)
1	21	36
2	22	37
3	23	38
4	24	39
5	25	40
6	26	41
7	27	42
8	28	43
9	29	44
10	30	45
11	31	Total Correct x 3
12	32	
13	33	
14	34	
15	35	
16	Total Correct x 2	<u>Total</u> Points
17		
18		(Up to 80 points possible
19		
20.		

## 2023 – 2024 Virtual Challenge Meet #4 Social Studies Key

Part I (1 point each)	Part II (2 points each)	Part III (3 points each)
20 points total	<u>30 points total</u>	30 points total
1. D	21. A	36. D
2. B	22. C	37. A
3. C	23. D	38. D
4. A	24. B	39. B
5. B	25. D	40. C
6. C	26. C	41. D
7. C	27. D	42. B
8. A	28. D	43. A
9. D	29. B	44. C
10. C	30. A	45. B
11. A	31. D	
12. D	32. B	
13. D	33. D	
14. B	34. B	
15. C	35. C	
16. B		
17. B		
18. D		
19. A		
20. B		



## 2023-2024 HS VIRTUAL CHALLENGE MEET #4



# SPELLING

## DO NOT OPEN TEST UNTIL TOLD TO DO SO

The Virtual Challenge Meets<sup>TM</sup>

DO NOT OPEN YOUR TEST UNTIL YOU ARE TOLD TO BEGIN.

## 2023-2024

## VIRTUAL CHALLENGE MEET #4 SPELLING & VOCABULARY

## Part I

## **DIRECTIONS:**

The following test items are comprised of list words and forms of list words. Part I has two sections: Proofreading (15 items) and Vocabulary (15 items). You will have **15 minutes** to complete Part I of the test, items 1 through 30.

For Contest Director use:	
STUDENT NAME	SCORE PART I
STUDENT GRADE LEVEL	SCORE PART II
	TOTAL SCORE (to post)
	TIEBREAKER SCORE (to post)
#### HS VIRTUAL CHALLENGE MEET #4 STUDENT NAME\_ SPELLING & VOCABULARY: PART I

<u>Questions 1-15</u> test your ability to recognize and correct misspelled words. From each of the 15 sets, select the one misspelled entry, then write it *correctly* spelled in the corresponding blank on your answer sheet. <u>Questions</u> <u>16-30</u> test your knowledge of the meanings and origins of words. For each sentence, select the **best** answer; then, using **a printed capital letter**, write it in the corresponding blank on your answer sheet. You will have 15 minutes to complete questions 1-30, which are worth 1 point each. **Credit will be given ONLY for answers placed on your answer sheet**.

1.	bazooka	precautionary	defeasance	portraitur	e Daula	giri
2.	blasé p	oraseodymium	forefront	pas de quarte	trimara	n
3.	assertiveness	jardinierè	osteomalac	ia sinfoni	etta dou	ıla
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7.	Zurich	paruaque	constringe	tamarind	asymptomatic	
8.	intrepid	eurhythmy	sine prole	Holystone	Yucatán	
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10	. subservient	a fortiori	sentience	xanthous	annihhilat	tive
11	. vegetarianism	n contraptio	on vanderl	bilt beurre	e blanc	embalming
12	. horologe	anozmic	uranium	fiduciary	accumulative	
13	. mandolin	otiose	grisette i	ndiscretion	sharlatan	
14	. adipocere	rogues gallery	g Gestalt	exorbitant	incipie	nce
15	. rotiform	scaphocephalic	pneumon	nectomy n	nutagen	suscinct

#### HS VIRTUAL CHALLENGE MEET #4: PART I

STUDENT NAME\_\_\_\_\_

16. A/An \_\_\_\_\_ can also be called a sphenodon.

A. tuatara B. oribi C. wrasse D. vibrissa E. hoopoe

17. Mendacious and deceitful are antonyms for \_\_\_\_\_.

A. trochaic B. appreciable C. extemporaneous D. inauspicious E. veracious

18. The second act in the play ended with powerful emotion as the light faded on the unmoving \_\_\_\_\_.

A. ex cathedra B. tableau vivant C. in vacuo D. noblesse oblige E. locum tenens

19. The word, **scherzo**, is derived from an Old Italian root meaning to \_\_\_\_\_.

A. keep silent B. joke C. heal D. drag E. be excessive

20. "ROY G BIV" is a popular \_\_\_\_\_\_ used to remember the colors of the rainbow.

A. panoply B. chthonic C. mnemonic D. interim E. monostich

21. The \_\_\_\_\_ ashes from the volcano fell on the village covering everything in a snowy blanket of residue.

A. circadian B. peregrine C. umbonate D. niveous E. saturnine

22. Hannah was able to \_\_\_\_\_ on her essay topic because the writing prompt was about her favorite hobby.

A. routinize B. disseminate C. expatiate D. proselyte E. animadvert

23. We couldn't help but laugh at Tiffany's \_\_\_\_\_ when she said that she needed a fire distinguisher to put out all of the candles on the birthday cake.

A. amalgamation B. zarf C. sobriquet D. parapraxis E. malapropism

#### HS VIRTUAL CHALLENGE MEET #4: PART I

#### STUDENT NAME

24. Even though she wore a thick sweatshirt, Annie's \_\_\_\_\_ shoulder blades were notably visible.

A. quadrumanous B. protractive C. leguminous D. farraginous E. alpha privative

25. The gymnastics instructor, a \_\_\_\_\_ college cheerleader, used her past experience to provide lessons for teens aspiring to make the high school cheer squad.

A. whilom B. centesimal C. pertinacious D. reticent E. vapid

26. While visiting Paris, Rachel booked a \_\_\_\_\_ tour of bistros and bakeries to expericence the culinary delights of the city.

A. pecuniary B. natatorial C. baronial D. rasorial E. prandial

27. Exhibiting an unnatural gleam from the excessive growth of bright green algae, the \_\_\_\_\_ lake was depleted of oxygen and as a result was absent of other life forms.

A. propaedeutic B. unilocular C. flagelliform D. eutrophic E. limicoline

28. The counterglow or \_\_\_\_\_ was caused by the interplanetary dust particles scattering the sunlight.

A. torsade B. kerygma C. lazulite D. gegenschein E. zastruga

29. Even though she knew it would cause \_\_\_\_\_, she asked for extra hot peppers on her nachos.

A. cretinism B. oriflamme C. dyspepsia D. aphonia E. erysipelas

30. \_\_\_\_\_ is unofficially called the judicial capital of South Africa.

A. Bloemfontein B. Chiricahua C. Dakar D. Sri Lanka E. Nuremberg

## THE HS VIRTUAL CHALLENGE MEETS: **SPELLING PART I - ANSWER SHEET**



Grader

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## HS VCM SPELLING - PART II - ANSWER SHEETS - PAGE 1

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## HS VCM SPELLING TIEBREAKER - ANSWER PAGE NAME:\_\_\_\_\_

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# 2023-2024 HS VIRTUAL CHALLENGE MEET #4

# SPELLING AND VOCABULARY PRONOUNCER AND VERIFIER'S LIST

Pronounce the words at the approximate rate of four per minute. A time indication is given after every four words. Spaces are provided for sentences should you choose to use them; however, sentences are not required by UIL rules.

Outside words are notated with one asterisk. Read <u>all</u> definitions.

Test created by: ASW Enterprises, LLC \* 1501 W Angeline \* Groesbeck, Texas 76642 (254) 729-0005 \* 1-800-627-9030 \* FAX 1-888-627-7209 web address: www.aswenterprises.com \* e-mail: asw@aswenterprises.com

## HS VIRTUAL CHALLENGE MEET #4 TEST: PRONOUNCER AND VERIFIER'S LIST

1.	<b>thermogenic</b> (thûr'mō-jěn' $i$ k, -mə-) - having to do with or causing the production of heat	
	Sentence	
2.	*synod (sĭn <sup>1</sup> əd) - an ecclesiastical council; an assembly or a council	
	Sentence	
3.	<b>cinereous</b> (sĭ-nîr <b>'</b> ē-əs) - like ashes or made of ashes; grayish in color	
	Sentence	
4.	. <b>hypostasis</b> (hī-pŏs'tə-sĭs) - a settling of fluids due to gravity; an underlying actuality	
	Sentence	
	1 minute	
5.	<b>decennial</b> ( $d\tilde{i}$ -sěn'ē-əl) - lasting for ten years or happening every ten years	
	Sentence	
6.	<b>morphallaxis</b> (môr'fə-lăk'sĭs) - the regeneration of a body part such as that which occurs in some lobsters	
	Sentence	
7.	<b>*ill-conceived</b> (ĭl <b>'</b> kən-sēvd <b>'</b> ) - not having a good plan of action	
	Sentence	
8.	apologue (ăp'ə-lôg', -lŏg') - a fable	
	Sentence	
	2 minutes	
9.	fractious (frăk'shəs) - unruly; irritable	
	Sentence	
10.	icosahedron ( $\bar{i}$ -k $\bar{o}$ 'sə-h $\bar{e}$ 'drən, $\bar{i}$ -k $\bar{o}$ s'ə-) - a geometrical figure with twenty faces	
	Sentence	

- Arikara (ə-rĭk'ər-ə) a group of Native American people; a member of this group; the language spoken by this group
  Sentence\_\_\_\_\_\_
- **12.** ignis fatuus (ĭg'nĭs făch'oo-əs) a light which hovers over a swamp and is also called a will-o'-the-wisp; an illusion

	Sentence
	3 minutes
13.	*Peace Corps (pes kôr) - an organization which sends American citizens to other countries to help the people in those countries
	Sentence
14.	<b>elutriate</b> ( $\tilde{i}$ - $loo'$ trē- $at'$ ) - to remove something such as ore by washing; to remove lighter particles by washing
	Sentence
15.	<b>nonfeasance</b> (nŏn-fē <sup>7</sup> zəns) - Law. the failure to do some part of an official duty or something that is required by law
	Sentence
16.	caliginous (kə-lĭj'ə-nəs) - gloomy and dark
	Sentence
	4 minutes
17.	stygian, Stygian (stij'ē-ən) - gloomy; dark; infernal; having to do with a river referred to in Greek myths
	Sentence
18.	wahine (wä-hē'nē, -nā') - a woman from Polynesia; Sports. a woman who surfs
	Sentence
19.	<b>*garçon</b> (gär-sôn <b>'</b> ) - a waiter
	Sentence
20.	<b>Rosicrucian</b> (rō'zĭ-krōo'shən, rŏz'ĭ-) - a member of an organization interested in studying philosophy and religious doctrines; a member of a secret organization of the 17th and 18th centuries   (adj.) having to do with such members and their philosophy
	Sentence

21.	<b>subaxillary</b> (sŭb-ăk'sə-lĕr' $\bar{e}$ ) - situated beneath the armpit
	Sentence
22.	falciform (făl'sə-fôrm') - shaped like a sickle
	Sentence
23.	<b>raglan</b> (răg <sup><math>\prime</math></sup> lən) - (adj.) relating to a kind of sleeve   (n.) a garment that has such a sleeve
	Sentence
24.	<b>Goethe</b> $(gat)$ - a famous German writer and scientist
	Sentence
	6 minutes
25.	whilom (wī'ləm, hwī'-) - former
	Sentence
26.	*macropterous (mə-krŏp <sup>1</sup> tər-əs) - having long or large wings or fins
	Sentence
27.	<b>rigadoon</b> (rĭg'ə-doon') - a dance; the music for this kind of dance
	Sentence
28.	<b>sequestration</b> (sē'kwĭ-strā'shən, sĕk'wĭ-) - the act of isolating; a type of chemical process; a legal process that seizes property until conditions are met
	Sentence
	7 minutes
29.	*El Niño (ĕl nēn 'yō) - Oceanography. a condition in which the surface of the ocean off the coast of western South America warms
	Sentence
30.	<b>voir dire</b> (vwär dîr') - Law. a preliminary questioning of prospective jurors and witnesses
	Sentence

31.	Boswellian (boz-wel'e-an) - related to the Scottish writer				
	Sentence				
32.	hussar (hə-zär', -sär') - a 15th century light cavalry horseman				
	Sentence				
	8 minutes				
33.	centesimal (sen-tes' a-mal) - having to do with or divided into hundredths				
	Sentence				
34.	Poseidon (pō-sīd'n, pə-) - Greek Mythology. a Greek god				
	Sentence				
35.	<b>lumpectomy</b> (lŭm-pĕk <sup>4</sup> tə-mē) - a surgical procedure				
	Sentence				
36.	tocsin (tŏk'sĭn) - an alarm; a bell which sounds an alarm; a warning				
	Sentence				
	9 minutes				
37.	<b>Precambrian</b> (prē-kăm <sup>7</sup> brē-ən, -kām <sup>7</sup> -) - (adj.) relating to a geologic period of the same name specific geologic period of the same name	(n.) the			
	Sentence				
38.	*fiasco (fē-ăs'kō, -ä'skō) - a failure or complete disaster				
	Sentence				
39.	<b>megacephaly</b> (měg'ə-sěf'ə-lē) - unusual or abnormal largeness regarding the size of the head				
	Sentence				
40.	internuncio ( $in'tar-nun'se-o'$ , -n $oon'$ -) - an envoy of the Vatican; a messenger				
	Sentence				

41.	<b>polonaise</b> $(p\delta l' a - n\bar{a}z', p\bar{o}' a - a dance; the music for this dance; a kind of dress$
	Sentence
42.	<b>videlicet</b> (vĭ-dĕl'ĭ-sĕt', vī-, wĭ-dā'lĭ-kĕt') - namely; that is (used as an introduction to lists, examples, etc.)
	Sentence
43.	<b>blitzkrieg</b> (blĭts <b>'</b> krēg') - a military offensive that is sudden and that involves both air and land forces
	Sentence
44.	mortuary (môr'choo-ĕr'ē) - a funeral home
	Sentence
	11 minutes
45.	<b>Caribbean</b> (kăr'ə-bē'ən, kə-rĭb'ē-ən) - having to do with a sea, the islands in that sea, or the people who live there
	Sentence
46.	*gnathic (năth <sup>1</sup> ik) - having to do with the jaw
	Sentence
47.	Afghanistan (ăf-găn'i-stăn') - a country in southwest-central Asia
	Sentence
48.	<b>detritus</b> (dĭ-trī <b>'</b> təs) - grains or fragments of rock that have broken away; rubble or litter
	Sentence
	12 minutes
49.	tumefacient (too'mə-fā'shənt, tyoo'-) - producing swelling
	Sentence
50.	<b>bravura</b> (brə-voor'ə, -vyoor'ə) - Music. a technique or style that has a sharp and clear tone; a section or passage that stresses a performer's capability; a manner that is showy
	Sentence

51.	*impenitent (ĭm-pĕn'í-tənt) - not contrite or remorseful
	Sentence
52.	<b>replevin</b> (rĭ-plĕv <sup><math>I</math></sup> ĭn) - (n.) a legal action to take back property that was taken in an unlawful manner; a writ for that kind of action   (v.) to take such action
	Sentence
	13 minutes
53.	<b>*teratogen</b> (tə-răt <b>'</b> ə-jən, tĕr <b>'</b> ə-tə-) - an agent which can cause an embryo or fetus to be malformed
	Sentence
54.	salmagundi (săl'mə-gŭn'dē) - a dish of vegetables; an assortment
	Sentence
55.	<b>passade</b> (pə-säd <sup>1</sup> ) - a kind of move in which a horse steps over the same spot; a temporary love affair
	Sentence
56.	*chauvinistic (shō'və-nĭs'tĭk) - overly devoted to one's country; prejudiced regarding one's gender or group
	Sentence
	14 minutes
57.	<b>annotator</b> ( $\check{a}n'\bar{o}-t\bar{a}'tar$ ) - one who provides critical commentary of a literary work
	Sentence
58.	pleurotomy (ploo-rot'o-me) - a surgical procedure
	Sentence
59.	<b>cholesterol</b> (kə-lĕs'tə-rôl', -rōl') - a substance found in animal tissues and some kinds of foods that can cause heart problems
	Sentence
60.	*shepherd's pie (shĕp'ərdz pī) - a dish consisting of meat baked in a crust made of potatoes
	Sentence

61.	lazulite (lăz'yoo-līt', lăz'ə-, lăzh'ə-) - a blue mineral	
	Sentence	
62.	<b>phaeton</b> (fa <b>'</b> i-tn) - a type of open carriage; a touring vehicle	
	Sentence	
63.	<b>vade mecum</b> (vā'dē mē'kəm, vä'dē mā'-) - something that a person carries about; a reference boo guidebook	ok or a
	Sentence	
64.	<b>palatial</b> ( $pa-l\bar{a}'shal$ ) - suitable for use in a royal residence or mansion; like a royal residence or man	nsion
	Sentence	
	16 minutes	
65.	<b>decedent</b> (dĭ-sēd'nt) - Law. a person who is dead	
	Sentence	
66.	<b>Negev</b> (něg'ěv) - a desert region located in Israel	
	Sentence	
67.	<b>stringendo</b> (strĭn-jĕn <sup>7</sup> dō) - Music. a direction indicating that the section should be played with an accelerating rate	
	Sentence	
68.	*obeisance (ō-bā'səns, ō-bē'-) - a gesture that expresses respect; an attitude which reflects homage respect	ge or
	Sentence	
	17 minutes	
69.	<b>verglas</b> (věr-glä <b>'</b> ) - a very thin layer of ice that might form on rock	
	Sentence	
70.	Rimbaud (răm-bō <sup>7</sup> , răn-) - a French poet	
	Sentence	

### HS VIRTUAL CHALLENGE MEET #4 TIEBREAKER: PRONOUNCER AND VERIFIER'S LIST

1.	*juvenescence (joo'və-nĕs'əns) - youth or youthfulness	
	Sentence	
2.	<b>Neolithic</b> $(n\bar{e}' \rightarrow lith'ik)$ - having to do with a certain period of history	
	Sentence	
3.	*démarche (dā-märsh') - a maneuver; a protest delivered by a diplomat; a citizen protest deliver public authorities	ed to
	Sentence	
4.	<b>Nez Perce</b> (něz' pûrs', něs') - a Native American people; a member of this group; the language group	of this
	Sentence	
	1 minute	
5.	<b>mountebank</b> (moun'tə-băngk') - (n.) a person who sells quack medicines; a charlatan or an imp (v.) to act as such a person would	ostor
	Sentence	
6.	<b>de jure</b> (dǐ joor'ē, dā yoor'ā) - Law. by law; by right	
	Sentence	
7.	narcissist (när'sĭ-sĭst) - a person who is self-centered and conceited	
	Sentence	
8.	<b>seriocomic</b> $(\hat{sir}'\bar{e}-\bar{o}-k\check{om}'\check{t}k)$ - containing both deep thought and humor	
	Sentence	
	2 minutes	
9.	*Lhasa apso (lä'sə ăp'sō, lăs'ə) - a kind of small dog	
	Sentence	
10.	ringhals (ring'hals') - a snake also called a spitting cobra	
	Sentence	

#### **TIEBREAKER PRONOUNCER/VERIFIER LIST - PAGE 2**

11. mithridate (mith'ri-dat') - an antidote used to counteract the effects of poison

Sentence filiopietistic (fil'e-o-pi'i-tis'tik) - having to do with an excessive reverence for one's forebears and the 12. traditions they followed Sentence\_\_\_\_\_ 3 minutes interminable (ĭn-tûr'mə-nə-bəl) - endless; wearisome 13. Sentence **\*imprimatur** (ĭm'prə-mä'toor, -mā'tər) - official approval to print or publish; sanction or approval; a 14. mark that stands for official approval Sentence\_\_\_\_\_ logogriph (lô'gə-grĭf', lŏg'ə-) - Games. a kind of word puzzle 15. Sentence **Demiurge** (děm<sup>*t*</sup>ē-ûrj<sup>*t*</sup>) - a deity considered to be the originator of evil in some religious philosophies 16. such as Gnosticism and Manichaeism Sentence\_\_\_\_\_ 4 minutes **quodlibet** (kwŏd'lə-bĕt') - a formal disputation; a funny medley 17. Sentence prejudicial (prej'a-dish'al) - damaging or hurtful; leading to or causing opinions to be made before all 18. information is considered Sentence\_\_\_\_\_ 19. \*wharfage (wôr'fij, hwôr'-) - the use of docks or piers; the charge for such use; a group of docks Sentence 20. basilica (bə-sĭl<sup>7</sup>i-kə) - a kind of building in ancient Rome; a kind of church building Sentence

## HS VIRTUAL CHALLENGE MEET #4 - PART I - GRADER'S KEY

1.	Dhaulagiri	16.	Α
2.	pas de quatre	17.	E
3.	jardinière	18.	B
4.	Omar Khayyám	19.	B
5.	major-domo	20.	С
6.	bowdlerize	21.	D
7.	pauraque	22.	С
8.	holystone	23.	E
9.	repentance	24.	B
10.	annihilative	25.	A
11.	Vanderbilt	26.	E
12.	anosmic	27.	D
13.	charlatan	28.	D
14.	rogues' gallery	29.	С
15.	succinct	30.	A

## HS VIRTUAL CHALLENGE MEET #4 - PART II GRADER'S KEY

- 1. thermogenic 16. caliginous 2. \*synod
- 18. wahine 3. cinereous
- 4. hypostasis
- 5. decennial
- 6. morphallaxis
- 7. \*ill-conceived
- 8. apologue
- 9. fractious
- 10. icosahedron
- 11. Arikara
- 12. ignis fatuus
- 13. \*Peace Corps
- 14. elutriate
- 15. nonfeasance

- 17. stygian, Stygian
- 19. \*garçon
- 20. Rosicrucian
- 21. subaxillary
- 22. falciform
- 23. raglan
- 24. Goethe
- 25. whilom
- 26. \*macropterous
- 27. rigadoon
- 28. sequestration
- 29. \*El Niño
- 30. voir dire

## **TEST GRADER'S KEY - PAGE 2**

- 31. Boswellian
- 32. hussar
- 33. centesimal
- 34. Poseidon
- 35. lumpectomy
- 36. tocsin
- 37. Precambrian
- 38. \*fiasco
- 39. megacephaly
- 40. internuncio
- 41. polonaise
- 42. videlicet
- 43. blitzkrieg
- 44. mortuary
- 45. Caribbean

- 46. \*gnathic
- 47. Afghanistan
- 48. detritus
- 49. tumefacient
- 50. bravura
- 51. \*impenitent
- 52. replevin
- 53. \*teratogen
- 54. salmagundi
- 55. passade
- 56. \*chauvinistic
- 57. annotator
- 58. pleurotomy
- 59. cholesterol
- 60. \*shepherd's pie

## **TEST GRADER'S KEY - PAGE 3**

- 61. lazulite
- 62. phaeton
- 63. vade mecum
- 64. palatial
- 65. decedent
- 66. Negev
- 67. stringendo
- 68. \*obeisance
- 69. verglas
- 70. Rimbaud

## **HS VIRTUAL CHALLENGE MEET #4 – TIEBREAKER**

- 1. \*juvenescence 16. Demi
- 2. Neolithic
- 3. \*démarche
- 4. Nez Perce
- 5. mountebank
- 6. de jure
- 7. narcissist
- 8. seriocomic
- 9. \*Lhasa apso
- 10. ringhals
- 11. mithridate
- 12. filiopietistic
- 13. interminable
- 14. \*imprimatur
- 15. logogriph

- 16. Demiurge (capital required)
- 17. quodlibet
- 18. prejudicial
- 19. \*wharfage
- 20. basilica