

AGA KHAN UNIVERSITY EXAMINATION BOARD

HIGHER SECONDARY SCHOOL CERTIFICATE

CLASS XI EXAMINATION

APRIL/ MAY 2018

Business Mathematics Paper I

Time: 30 minutes Marks: 20

INSTRUCTIONS

1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 20 only.
4. In each question there are four choices A, B, C, D. Choose ONE. On the answer grid black out the circle for your choice with a pencil as shown below.

Correct Way		Incorrect Ways	
1		1	
		2	
		3	
		4	

Candidate's Signature

5. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
6. DO NOT write anything in the answer grid. The computer only records what is in the circles.
7. You may use a scientific calculator if you wish.

1. A health supplement of 250 grams consists of vitamins A and C. If vitamin A makes 70% of the weight, then the weight of vitamin C will be
 - A. 30 grams.
 - B. 75 grams.
 - C. 150 grams.
 - D. 175 grams.
2. Sajid bought a car for Rs 750,000 and later sold it at a loss of 20%. The loss incurred is
 - A. Rs 15,000
 - B. Rs 60,000
 - C. Rs 150,000
 - D. Rs 600,000
3. In a sale, the marked price of goods is reduced by 25%. If the marked price of a diary was Rs 500, then its price in sale is
 - A. Rs 325
 - B. Rs 375
 - C. Rs 525
 - D. Rs 575
4. 100 grams of a food item contains 9.3 grams of protein. A serving of 30 grams of this food item will contain how many grams of protein?
 - A. 2.79
 - B. 2.85
 - C. 3.22
 - D. 31.0

Zara deposits Rs 5,000 in her savings account at the end of each quarter for the next 6 years. Interest is earned at a rate of 3% per year, compounded quarterly.

Using this information, answer Q.5 and Q.6.

5. The number of compounding periods are
 - A. 12
 - B. 18
 - C. 20
 - D. 24
6. The interest rate per quarter is
 - A. 0.12
 - B. 0.005
 - C. 0.0075
 - D. 0.00125

7. If $(1110)_2 - x = (11)_2$, then x is equal to

- A. $(111)_2$
- B. $(1111)_2$
- C. $(1011)_2$
- D. $(10001)_2$

8. $(400)_5 + (110)_5$ is equal to

- A. $(010)_5$
- B. $(310)_5$
- C. $(410)_5$
- D. $(1010)_5$

9. $(110)_5$ is equal to

- A. $(1110)_2$
- B. $(10110)_2$
- C. $(11110)_2$
- D. $(111100)_2$

10. Which of the following is TRUE for the line $x = -3$?

	Parallel to	Passes through
A	x -axis	$(0, -3)$
B	x -axis	$(-3, 0)$
C	y -axis	$(0, -3)$
D	y -axis	$(-3, 0)$

11. The range of given binary relation A is

$$A = \{(10, a), (10, b), (10, c), (20, a), (20, b), (20, c), (30, a), (30, b), (30, c)\}$$

- A. $\{a, b, c\}$
- B. $\{10, 20, 30\}$
- C. $\{10a, 10b, 10c\}$
- D. $\{10a, 20b, 30c\}$

12. The x and y intercepts of the line $y = -2x + 4$ are

	x -intercept	y -intercept
A	-2	4
B	2	4
C	4	-2
D	4	2

13. If 5 is subtracted from two times of a number, the result is 3. The number is

- A. 1
- B. $\sqrt{2}$
- C. $2\sqrt{2}$
- D. 4

14. On factorisation of $9x^2 + 3ax + 6x + 2a$, we get

- A. $(3x + a)(3x + 2)$
- B. $(3a + x)(3a + 2)$
- C. $(3x^2 + a)(3x + 2)$
- D. $(3ax + a)(3ax + 2)$

15. What should be added to the expression $36x^2 + 24x$ to make it a perfect square?

- A. 2
- B. 4
- C. 12
- D. 24

16. $y = x + 3$; $y = -x$

When x is eliminated from the given two equations, we get

- A. $y + 3 = 0$
- B. $y - 3 = 0$
- C. $2y + 3 = 0$
- D. $2y - 3 = 0$

17. If P is a scalar matrix, then the transpose of P is equal to

- A. P
- B. $-P$
- C. $(-P)^t$
- D. $-P^t$

18. If $\begin{bmatrix} 5 & 4 \\ -2 & 0 \end{bmatrix} + Q = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$, then Q is equal to

- A. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
- B. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
- C. $\begin{bmatrix} 0 & -4 \\ 2 & 5 \end{bmatrix}$
- D. $\begin{bmatrix} -5 & -4 \\ 2 & 0 \end{bmatrix}$

19. The determinant of the matrix $\begin{bmatrix} 5 & 3 \\ 1 & 2 \end{bmatrix}$ is equal to

- A. -3
- B. 7
- C. 13
- D. 10

20. Which of the following is a scalar matrix?

- A. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
- B. $\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$
- C. $\begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix}$
- D. $\begin{bmatrix} 0 & 2 \\ 2 & 0 \end{bmatrix}$

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