

AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS IX

MODEL EXAMINATION PAPER 2020

General Mathematics Paper I

Time: 45 minutes Marks: 30

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 30 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 simple calculator if you wish.

1. In decimal numbers, 5.7% expressed as
 - A. 0.0057
 - B. 0.057
 - C. 5.7
 - D. 570

2. Flowers are distributed between two friends Asma and Khalida in the ratio 5 : 7. If Asma gets 35 flowers, then the number of flowers Khalida will get
 - A. 25
 - B. 35
 - C. 49
 - D. 63

3. The distance between two towns X and Y is 75 km. A family has covered a distance of 20 km from town X . The percentage of remaining distance to town Y is
 - A. 26.67
 - B. 55.00
 - C. 73.33
 - D. 136.36

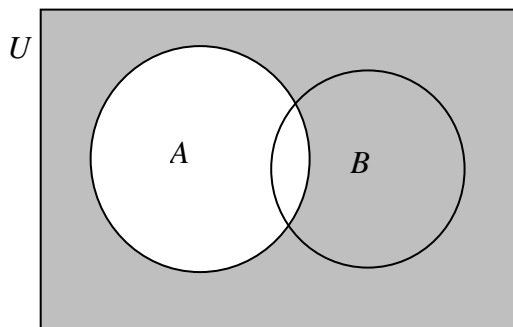
4. Zahida paid *zakat* of Rs 13,500 on annual savings. Her annual saving was Rs
(**Note:** Rate of *zakat* is 2.5%.)
 - A. 54,000
 - B. 54,500
 - C. 540,000
 - D. 545,000

5. Mr Habib owns a property of worth Rs 8,250,000. As his legal heirs, he left two sons and two daughters; the share of son is two times that of daughter. The share of each daughter is Rs
 - A. 1,175,000
 - B. 1,375,000
 - C. 2,062,500
 - D. 2,750,000

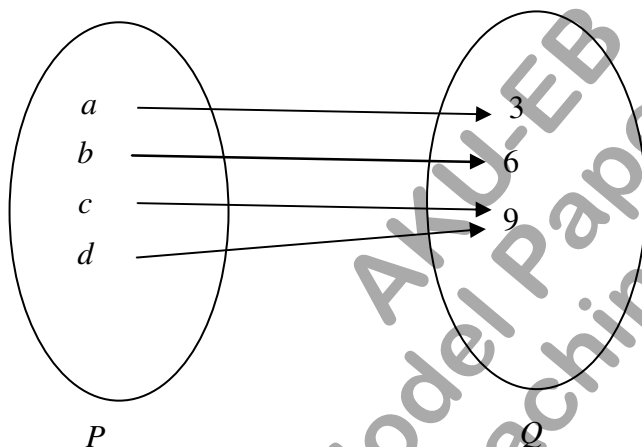
6. A chocolate box contains 250 chocolates. If some children eat 70% of these chocolates, then the remaining chocolates will be
 - A. 75
 - B. 150
 - C. 175
 - D. 220

7. Shazim purchased a house for Rs 2,500,000. After two years, he sold it at a profit of 30%. The selling price of the house is Rs
- A. 3,250,000
 - B. 8,333,333.3
 - C. 10,833,333.3
 - D. 750,000
8. Kashif bought a used mobile phone for Rs 5,000 and spent Rs 225 in repairs. After using it for 10 months, he sold it for Rs 2,000. He suffered a loss of Rs
- A. 2,775
 - B. 3,000
 - C. 3,225
 - D. 5,225
9. Ahmed and Bilal are two partners in a business. As per agreement, the profit sharing ratio should be in accordance with the amount invested by each partner. Ahmed invested Rs 120,000 and Bilal invested Rs 45,000. If they earned a profit of Rs 22,000, then the share of Bilal is Rs
- A. 6,000
 - B. 8,000
 - C. 16,000
 - D. 18,000
10. The domain of the binary relation $R = \{(d, 11), (e, 22), (f, 33)\}$ is
- A. $\{11, 22, 33\}$
 - B. $\{d, 11\}$
 - C. $\{d, e, f\}$
 - D. $\{d, e, f, 11, 22, 33\}$
11. For the given sets $A = \{1, 2, 3\}$ and $B = \{2, 5\}$, $(A \cup B) - B$ is equal to
- A. $\{\}$
 - B. $\{1, 3\}$
 - C. $\{2\}$
 - D. $\{5\}$

12. The shaded portion in the given Venn diagram represents



- A. A^C
 B. $A^C \cup B$
 C. $A \cup B^C$
 D. B^C
13. The domain of the binary relation, between set P and set Q , in the given diagram is



- A. $\{a, b, c\}$
 B. $\{a, b, c, d\}$
 C. $\{a, b, d\}$
 D. $\{c, d\}$
14. $\sqrt[3]{\frac{81}{3}}$ is equal to

- A. $3^{\frac{1}{3}}$
 B. $9^{\frac{1}{3}}$
 C. 3
 D. 9

15. For $8.9 \times 10^b = 0.00089$, the value of b is

- A. 3
- B. -3
- C. 4
- D. -4

16. The value of $\log_a a^2 - \log_a a$ is equal to

- A. 1
- B. 2
- C. $2a$
- D. a

17. The exponent in the equation $(x + y)^w = z$ is

- A. 1
- B. z
- C. w
- D. $x + y$

18. The exponential form of $\log_3 5 = 2x$ is

- A. $(2x)^3 = 5$
- B. $(2x)^5 = 3$
- C. $5^{2x} = 3$
- D. $3^{2x} = 5$

19. The value of algebraic expression $\frac{xy^2 - x^2y}{xy}$ at $x = -1$ and $y = -1$ is

- A. 0
- B. 1
- C. 2
- D. -2

20. $x^2 - \left(\frac{1}{2}\right)^2$ is equal to

- A. $\left(x - \frac{1}{2}\right)\left(x - \frac{1}{2}\right)$
- B. $\left(x + \frac{1}{2}\right)\left(x - \frac{1}{2}\right)$
- C. $\left(x + \frac{1}{4}\right)\left(x - \frac{1}{4}\right)$
- D. $\left(x - \frac{1}{4}\right)\left(x - \frac{1}{4}\right)$

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21. The rational expression $\frac{9x^2 - 4}{(3x + 2)(9x - 4)}$, in its lowest term is

- A. $\frac{x}{3x + 2}$
- B. $\frac{3x - 2}{9x - 4}$
- C. $\frac{9x - 4}{3x + 2}$
- D. $\frac{3x + 2}{9x - 4}$

22. On factorisation of $3x + 6x^2 + 9x^3$, we get

- A. $3x(1 + 2x + 3x^2)$
- B. $3x(1 + 3x + 6x^2)$
- C. $3x(1 + 2x^2 + 3x^2)$
- D. $3x(3x + 6x^2)$

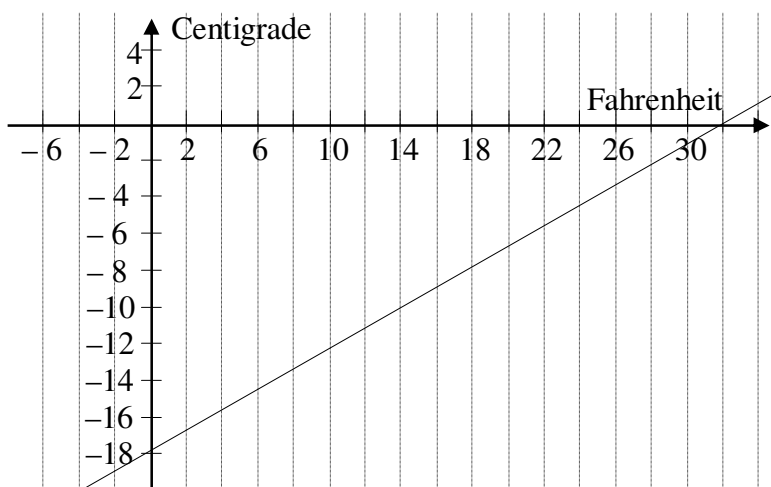
23. The factors of $x^3 - \left(\frac{1}{2}\right)^3$ are

- A. $\left(x - \frac{1}{2}\right)\left(x^2 + x + \frac{1}{4}\right)$
- B. $\left(x - \frac{1}{2}\right)\left(x^2 - x + \frac{1}{4}\right)$
- C. $\left(x - \frac{1}{2}\right)\left(x^2 + \frac{x}{2} + \frac{1}{4}\right)$
- D. $\left(x - \frac{1}{2}\right)\left(x^2 - \frac{x}{2} + \frac{1}{4}\right)$

24. If $2x^2 + 3x - 5$ is divided by $x + 1$, then the remainder is

- A. -10
- B. -6
- C. -4
- D. 0

25. The given graph shows conversion of temperature from Fahrenheit to Centigrade scale.



From the graph, 14°F in centigrade is

- A. 4°C
 B. 8°C
 C. -10°C
 D. -14°C
26. If $A = \begin{bmatrix} 3 & 4 \\ a & 8 \end{bmatrix}$ and $|A| = 0$, then a is equal to
- A. -7
 B. -6
 C. 6
 D. 7
27. Which of the following is/ are symmetric matrix/ matrices?

$$X = \begin{bmatrix} a & 0 & 0 \\ 0 & b & 0 \\ 0 & 0 & c \end{bmatrix}$$

$$Y = \begin{bmatrix} 0 & 0 & a \\ 0 & b & 0 \\ c & 0 & 0 \end{bmatrix}$$

$$Z = \begin{bmatrix} 0 & 0 & a \\ 0 & a & 0 \\ a & 0 & 0 \end{bmatrix}$$

- A. X only
 B. Y only
 C. X and Z
 D. Y and Z

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28. If the determinant of $\begin{bmatrix} 5 & a \\ 6 & a \end{bmatrix}$ is $a - 2$, then the value of a will be

- A. $-\frac{1}{5}$
- B. 0
- C. 1
- D. 2

29. The matrix $A = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$ is a

- A. scalar matrix.
- B. square matrix.
- C. identity matrix.
- D. diagonal matrix.

30. Let $A^t = \begin{bmatrix} -\frac{1}{2} & 3 \\ a & -4 \end{bmatrix}$ and $A^t + B = O$, where O is the null matrix of order 2. The matrix B is

- A. $\begin{bmatrix} -\frac{1}{2} & a \\ 3 & -4 \end{bmatrix}$
- B. $\begin{bmatrix} \frac{1}{2} & -3 \\ -a & 4 \end{bmatrix}$
- C. $\begin{bmatrix} -\frac{1}{2} & 3 \\ a & -4 \end{bmatrix}$
- D. $\begin{bmatrix} \frac{1}{2} & -a \\ -3 & 4 \end{bmatrix}$

AKU-EB 2020
Model Paper for Teaching & Learning