AGA KHAN UNIVERSITY EXAMINATION BOARD

HIGHER SECONDARY SCHOOL CERTIFICATE

CLASS XI

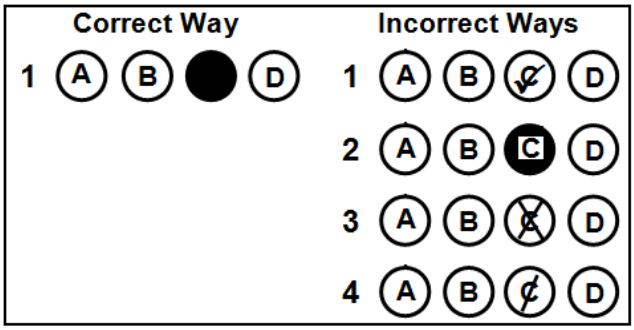
Business Mathematics Paper I

Time: 30 minutes Marks: 20

Note: The MCQs in this model paper can also be used as examples and for practice for Annual and Re-sit Examinations 2021.

INSTRUCTIONS

1. Read each question carefully.
2. The MCQs in this model paper can be used as examples and for practice for Annual and Re-sit examinations 2021.
3. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
4. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 20 only.
5. 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.



Candidate's Signature

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

Note: The MCQs in this model paper can be used as examples and for practice for Annual and Re-sit examinations 2021.

1. On increasing 10 in the ratio 7: 5, we get

   A. 5
   B. 12
   C. 14
   D. 20

2. 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 Rs

   A. 325
   B. 375
   C. 525
   D. 575

Use the given information to answer Q.3 and Q.4.

Zara deposited Rs 5,000 at the end of each period of three months for 6 years at 3% interest compounded quarterly.

3. The number of compounding periods are

   A. 12
   B. 18
   C. 20
   D. 24

4. The rate of interest per period is

   A. 0.12
   B. 0.005
   C. 0.0075
   D. 0.00125

5. 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	$(-3, 0)$

6. The slope of the line passing through (3, 4) and (3, 7) is

A. 0
B. $\frac{11}{6}$
C. 3
D. undefined

7. If the roots of quadratic equation are 2 and -1, then the equation will be

A. $x^2 + x - 2 = 0$
B. $x^2 - x + 2 = 0$
C. $x^2 - x - 2 = 0$
D. $x^2 + x + 2 = 0$

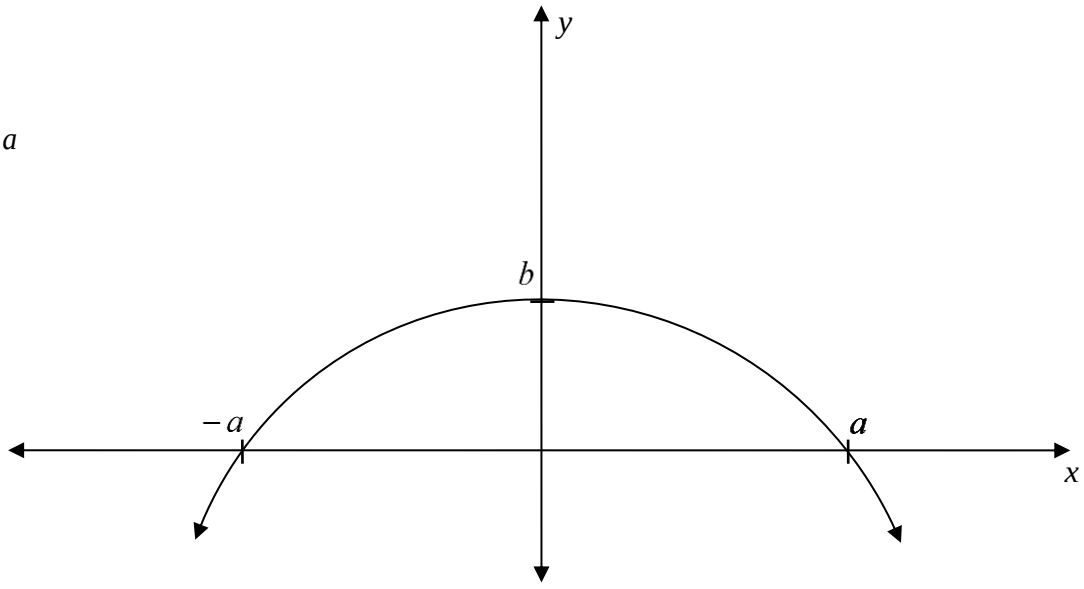
8. If the difference in roots of the quadratic equation $(2x-3)(4+x)=0$ is a, then the value of a equals

(**Note:** $a < 0$)

A. $-\frac{11}{2}$
B. $-\frac{7}{2}$
C. $-\frac{2}{7}$
D. $-\frac{2}{11}$

9. The sum of x – intercepts in the given curve is

A. 0
B. 1
C. b
D. $2a$



10. The solution set of $x+a=0$ and $y+b=0$ is

A. (a,b)
B. $\{(a,b)\}$
C. $(-a,-b)$
D. $\{(-a,-b)\}$

11. If $x=by$ and $a=b-2$, then the value of $\frac{x}{y}$, in terms of *a*, is equal to

(**Note:** *a* and *b* are constants.)

A. $\frac{a}{2}$
B. $2a$
C. $a-2$
D. $a+2$

12. The determinant of the matrix $A=\begin{bmatrix} a & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$, is

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

13. The minor of the element in the third row and second column of the given matrix $\begin{bmatrix} 2 & 2 & 3 \\ 1 & 2 & 3 \\ 1 & 5 & 7 \end{bmatrix}$ is

A. -6
B. -3
C. 3
D. 6

14. Which of the following matrix multiplications is possible?

A. $\begin{bmatrix} a \\ b \end{bmatrix} \times \begin{bmatrix} a & b \\ c & d \end{bmatrix}$
B. $\begin{bmatrix} a \\ b \end{bmatrix} \times \begin{bmatrix} a \\ b \end{bmatrix}$
C. $\begin{bmatrix} a & b \end{bmatrix} \times \begin{bmatrix} a & b \end{bmatrix}$
D. $\begin{bmatrix} a \\ b \end{bmatrix} \times \begin{bmatrix} a & b \end{bmatrix}$

15. $\frac{d}{dx}\sqrt{\frac{ax-b}{a}}$ is equal to

A. $\frac{1}{2}\left(\frac{ax-b}{a}\right)^{\frac{1}{2}}$

B. $\frac{1}{2a}\left(\frac{ax-b}{a}\right)^{\frac{1}{2}}$

C. $\frac{1}{2}\left(\frac{ax-b}{a}\right)^{-\frac{1}{2}}$

D. $\frac{1}{2a}\left(\frac{ax-b}{a}\right)^{-\frac{1}{2}}$

16. $\frac{d}{dx}\left((3x)x^{\frac{3}{2}}\right)$ is equal to

A. $\frac{15}{2}\left(x^{\frac{3}{2}}\right)$

B. $\frac{9}{2}\left(x^{\frac{3}{2}}\right)$

C. $\frac{9}{2}\left(x^{\frac{1}{2}}\right)$

D. $\frac{15}{2}\left(x^{\frac{1}{2}}\right)$

17. $\frac{d}{dx}\left(\sqrt[3]{x}\right)$ is equal to

A. $\frac{1}{3}\left(x^{-\frac{1}{2}}\right)$

B. $\frac{1}{3}\left(x^{-\frac{2}{3}}\right)$

C. $\frac{1}{6}\left(x^{-\frac{1}{2}}\right)$

D. $\frac{1}{6}\left(x^{-\frac{2}{3}}\right)$

18. $\frac{d}{dx}\left(1-x^{-n}\right)$ is equal to

A. nx^{-n-1}
B. $-nx^{-n-1}$
C. $n(1-x)^{-n-1}$
D. $-n(1-x)^{-n-1}$

19. If n^{th} term of an arithmetic progression is $8-3n$, then its common difference will be

A. -3
B. -2
C. 5
D. 2

20. If 2^{6-n} is the n^{th} term of a geometric sequence, then the common ratio is

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

END OF PAPER

Please use this page for rough work

Please use this page for rough work