AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X

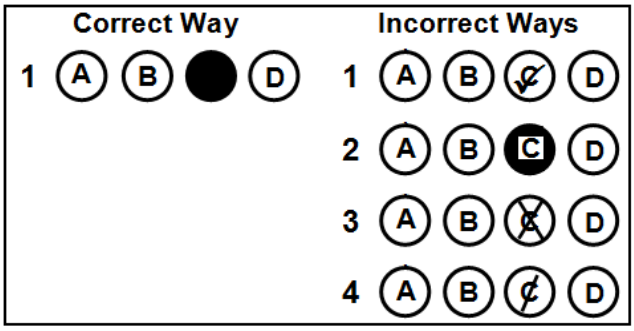
General Mathematics Paper I

Time: 45 minutes Marks: 30

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 30 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 simple 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 a certain day, Arham got $ 65 in exchange of Rs 9,165. At the same rate, if he exchanges Rs 4,935, then he will get

   A. $ 35
   B. $ 33.89
   C. $ 75.92
   D. $ 141

2. Ms Nusrat earned simple interest of Rs 1,000 in 4 years. If the interest rate is 5% per annum, then amount she invested is Rs

   A. 4,500
   B. 5,000
   C. 8,000
   D. 20,000

3. Rawaha bought a motor cycle on installments that costs him Rs 110,000. He paid Rs 10,000 as down payment. If monthly installment is Rs 5,000, then the number of installments will be

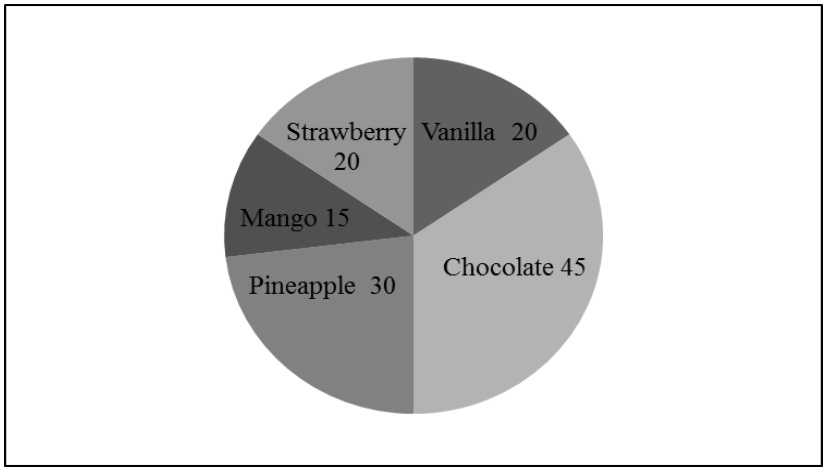
   A. 18
   B. 20
   C. 22
   D. 24

4. Sameerah works in an office. She works 48 hours in a week and earns at a rate of Rs 200 per hour. If she works additional 6 hours at a rate of Rs 300 per hour in the week, then her total salary for the week will be in Rs

   A. 10,800
   B. 11,400
   C. 15,600
   D. 16,200

Use the given pie chart to answer Q.5 and Q.6.

The number of ice cream cups of different flavours sold at an ice cream parlour is shown in the given pie-chart.



5. The percentage sale of chocolate flavour is

   A. 58.50
   B. 34.62
   C. 52.94
   D. 38.25

6. The angle of the sector corresponding to strawberry flavour is

   A. 7.22°
   B. 15.38°
   C. 20°
   D. 55.38°

7. The ages, in years, of nine children in a group are 4, 7, 8, 9, 6, 10, 5, 8 and 10. The median age is

   A. 6
   B. 7
   C. 8
   D. 10

8. The highest common factor (HCF) of $a + b$ and $a^2 + 2ab + b^2$ is

   A. $a^2 + b^2$
   B. $a^3 + b^3$
   C. $(a + b)^3$
   D. $a + b$

9. The least common multiple of $\frac{1}{3}$, $x-1$ and $(x-1)^2$ is

A. $(x-1)$
B. $(x-1)^2$
C. $\frac{1}{3}(x-1)$
D. $\frac{1}{3}(x-1)^2$

10. On simplifying $\frac{(a+b)^2}{(a+b)(a-b)(a+b)}$, we get

A. $\frac{1}{a+b}$
B. $\frac{1}{a-b}$
C. $\frac{(a+b)}{a-b}$
D. $\frac{1}{a^2-b^2}$

11. The simplified form of $\sqrt{\frac{(x+a)^3(x^2-a^2)}{(x-a)}}$ is

A. $(x+a)^2$
B. x^2+a^2
C. $(x+a)(x-a)$
D. $(x+a)^{\frac{3}{2}}(x-a)$

12. The value of x which satisfies the linear equation $\frac{\sqrt{x}}{a}-a=0$ is

A. $\{a\}$
B. $\{a^2\}$
C. $\{a^4\}$
D. $\{4a^2\}$

13. The solution set of the equation $2(x-3)+4=4$ is

A. $\{1\}$
B. $\left\{\frac{3}{2}\right\}$
C. $\{3\}$
D. $\{5\}$

14. The solution set of $\frac{x}{2} \leq \frac{1}{2}$, where $x \in W$, is

A. {0}
B. {1}
C. {0,1}
D. {…,–2,–1,0,1}

15. The value of x in the given linear equation $\frac{b(x-a)}{a}=0$ is

A. $\{a\}$
B. $\left\{\frac{a}{b}\right\}$
C. $\{ab\}$
D. $\frac{a+ab}{b}$

16. The solution set of $x^2+6x+9=0$ is

A. {3}
B. {–3}
C. {–3,3}
D. {0,–3}

17. What should be added to x^2+3x to make it a perfect square?

A. $\frac{1}{9}$
B. $\frac{3}{2}$
C. $\frac{9}{4}$
D. 1

18. If the first term of an arithmetic sequence is 8 and the fifth term is 20, then the common difference is

A. 3
B. 4
C. 7
D. 12

19. The 7^{th} term of the sequence – 3, – 4, – 5, – 6, …

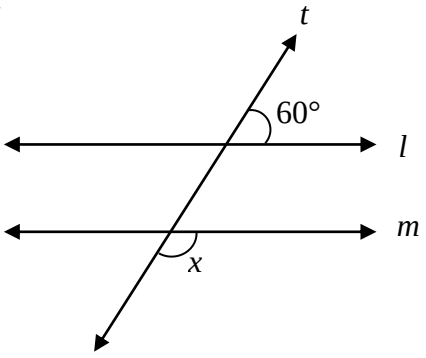
A. – 7
B. – 8
C. – 9
D. – 10

20. In a geometric sequence having *n* terms, if the first term is 45 and the common ratio is $\frac{1}{2}$, then the general formula of this sequence is

A. $45+\left(\frac{1}{2}\right)^{n-1}$
B. $45\times\left(\frac{1}{2}\right)^{n-1}$
C. $45+(n-1)\left(\frac{1}{2}\right)$
D. $45\times(n-1)\left(\frac{1}{2}\right)$

21. *l* and *m* are parallel lines and transversal *t* intersects them as shown in the diagram. The value if *x* in the diagram is

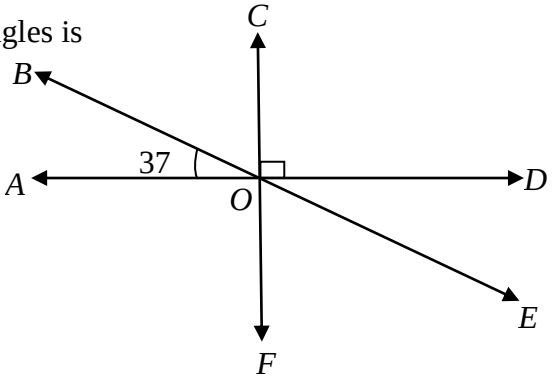
A. 30°
B. 60°
C. 120°
D. 150°



NOT TO SCALE

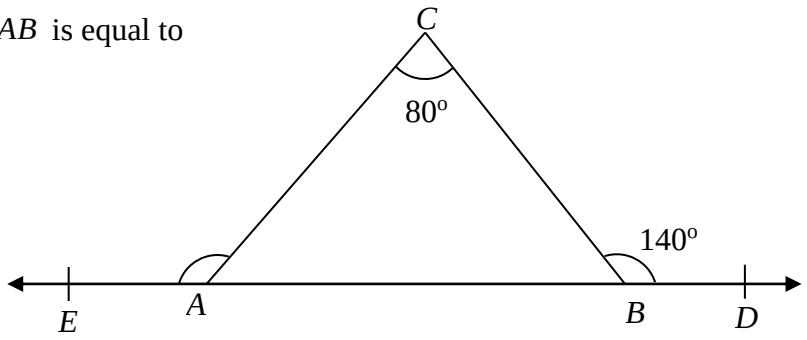
22. In the given diagram, one pair of complementary angles is

A. $\angle AOB$ and $\angle AOF$
B. $\angle DOE$ and $\angle EOF$
C. $\angle DOE$ and $\angle DOC$
D. $\angle AOB$ and $\angle DOE$



23. In the given diagram, $\angle CAB$ is equal to

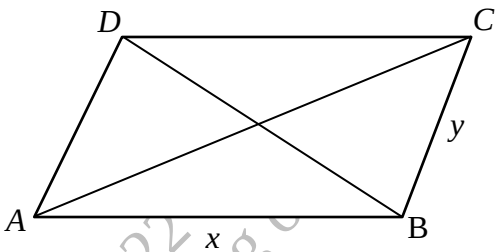
A. 40^o
B. 60^o
C. 80^o
D. 100^o



24. For the given parallelogrm $ABCD$ which of the following options is TRUE.

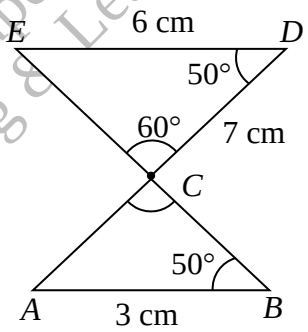
I. $m\overline{AC} > x$
II. $m\overline{AC} > y$
III. $m\overline{AC} > x + y$

A. I only
B. III only
C. I and II
D. II and III



25. In the given figure, $m\overline{BC}$ is equal to

A. 3.0 cm
B. 3.5 cm
C. 4.0 cm
D. 6.0 cm



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26. If base and perpendicular of a right angled triangle are $9\sqrt{2}$ cm and $12\sqrt{2}$ cm respectively, then its hypotenuse will be

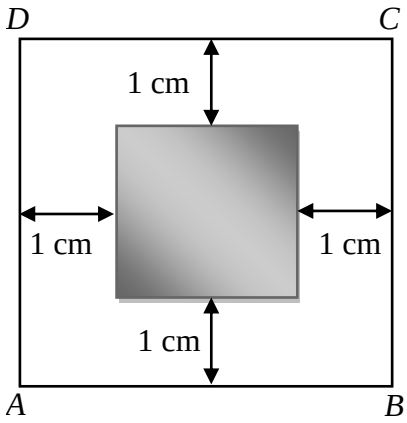
A. $13\sqrt{2}$ cm
B. $14\sqrt{2}$ cm
C. $15\sqrt{2}$ cm
D. $16\sqrt{2}$ cm

27. The area of the semi-circle whose diameter is 12 cm is

A. 18π cm^2
B. $18\pi^2$ cm^2
C. 36π cm^2
D. $36\pi^2$ cm^2

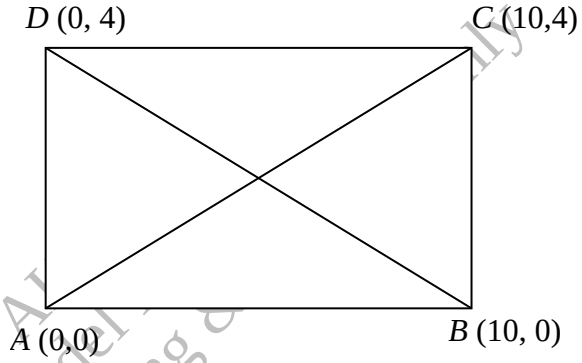
28. In the given diagram the area of the small square is 16 cm^2. The area of the larger square *ABCD* is

A. 20 cm^2
B. 24 cm^2
C. 25 cm^2
D. 36 cm^2



29. The point of intersection of the diagonals of the given rectangle *ABCD* is

A. (0, 2)
B. (5, 2)
C. (5, 4)
D. (10, 2)



30. If the distance between the points (a, a) and (0, 0) is $\sqrt{2}$, then one of the value of *a* is

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

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