



AL-FALAH INTERNATIONAL SCHOOL, DPS-JEDDAH
PERIODIC TEST-II (2022-23)



GRADE: X
MATHEMATICS

Duration: 2 Hours 30 Min
Max Marks: 60

General Instructions:

1. This Question Paper has 5 Sections A-E.
2. Section A has 14 MCQs carrying 1 mark each
3. Section B has 4 questions carrying 02 marks each.
4. Section C has 5 questions carrying 03 marks each.
5. Section D has 3 questions carrying 05 marks each.
6. Section E has 2 case based integrated units of assessment (04 marks each) with sub-parts of values of 1, 1 and 2 marks each respectively.
7. All Questions are compulsory. However, an internal choice in 1 question of 5 marks, 2 question of 3 marks and 2 question of 2 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E
8. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated

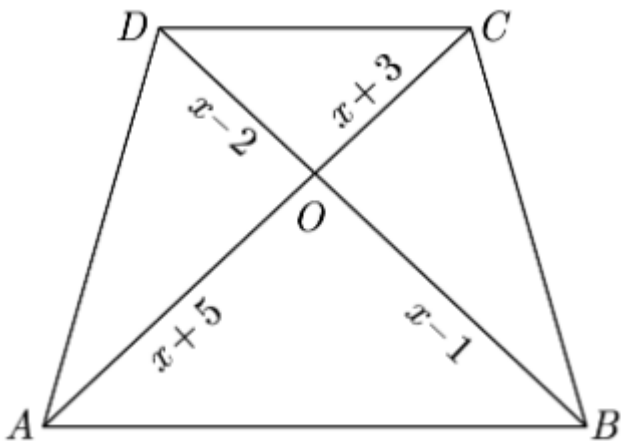
SECTION- A

Section A consists of 14 questions of 1 mark each.

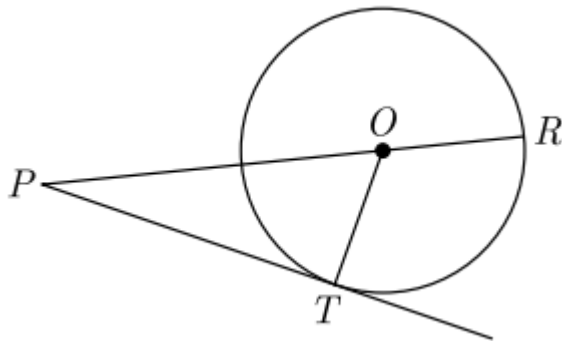
Q NO 1-14 Select the most appropriate answer from the given options:

- 1) The LCM of smallest two digit composite number and smallest composite number is
(a) 12 (b) 4 (c) 20 (d) 44
- 2) If α and β are zeroes and the quadratic polynomial $x^2 - x - 4$, then the value of $\frac{1}{\alpha} + \frac{1}{\beta} - \alpha\beta$
(a) $\frac{15}{4}$ (b) $\frac{-15}{4}$ (c) 4 (d) 15
- 3) Value of k for which the quadratic equation $2x^2 - kx + k = 0$ has equal roots is/are
(a) 0 (b) 8 (c) both a and b (d) -8
- 4) If a pair of linear equations is consistent, then the lines will be
(a) parallel (b) always coincident
(c) intersecting or coincident (d) always intersecting

- 5) If the point P (k , 0) divides the line segment joining the points A(2, -2) and B(- 7, 4) in the ratio 1 : 2, then the value of k is
- (a) 1 (b) 2 (c) -2 (d) -1
- 6) Given that $\sin \alpha = \frac{\sqrt{3}}{2}$ and $\cos \beta = 1$, then the value of $\alpha - \beta$ is
- (a) 0° (b) 90° (c) 60° (d) 30°
- 7) In the given figure, if $AB \parallel DC$, find the value of x.



- (a) 1 (b) 2 (c) 5 (d) 7
- 8) If in triangles ABC and DEF, $\frac{AB}{DE} = \frac{BC}{FD}$, then they will be similar, when
- (a) $\angle B = \angle E$ (b) $\angle A = \angle D$ (c) $\angle B = \angle D$ (d) $\angle A = \angle F$
- 9) $\Delta ABC \sim \Delta PQR$. If AM and PN are altitudes of ΔABC and ΔPQR respectively and $AB^2 : PQ^2 = 4 : 9$, then AM:PN =
- (a) 16:81 (b) 4:9 (c) 3:2 (d) 2:3
- 10) In the figure, on a circle of radius 7 cm, tangent PT is drawn from a point P such that $PT = 24$ cm. If O is the centre of the circle, then the length of PR is



- (a) 30 cm (b) 28 cm (c) 32 cm (d) 25 cm

- 11) Someone is asked to take a number from 1 to 100. The probability that it is a prime, is
 (a) $\frac{8}{25}$ (b) $\frac{1}{4}$ (c) $\frac{3}{4}$ (d) $\frac{13}{50}$
- 12) If $5 \tan\beta = 4$, then $\frac{5 \sin\beta - 2 \cos\beta}{5 \sin\beta + 2 \cos\beta} =$
 (a) $\frac{1}{3}$ (b) $\frac{2}{5}$ (c) $\frac{3}{5}$ (d) 6
- 13) **Assertion (A)** : If product of two numbers is 5780 and their HCF is 17, then their LCM is 340
Reason (R) : HCF is always a factor of LCM
- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)
 (b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A)
 (c) Assertion (A) is true but reason (R) is false.
 (d) Assertion (A) is false but reason (R) is true.
- 14) **Assertion (A)**: The value of y is ± 6 , for which the distance between the points P (2,-3) and Q (10, y) is 10.

Reason(R) : Distance between two given points,

$A(x_1, y_1)$ and $B(x_2, y_2)$ is given,

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
 (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
 (c) Assertion (A) is true but reason (R) is false.
 (d) Assertion (A) is false but reason (R) is true

SECTION- B

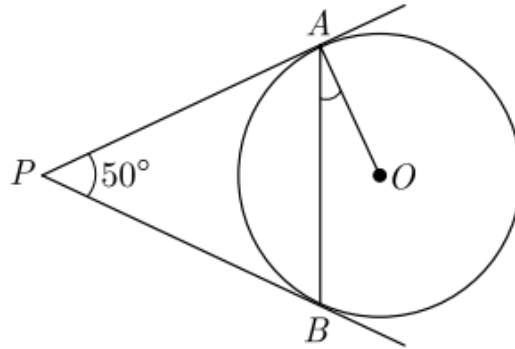
Section B consists of 4 questions of 2 mark each.

- 15) Find the values of α and β for which the following pair of linear equations has infinite number of solutions : $2x + 3y = 7$; $2\alpha x + (\alpha + \beta)y = 28$
- 16) If $\sqrt{2} \sin\theta = 1$, find the value of $\sec^2\theta - \operatorname{cosec}^2\theta$

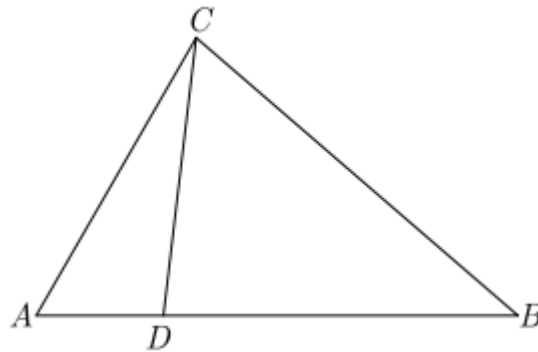
OR

Express the trigonometric ratio of $\sec A$ and $\tan A$ in terms of $\sin A$.

- 17) In figure, PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$. Write the measure of $\angle OAB$.



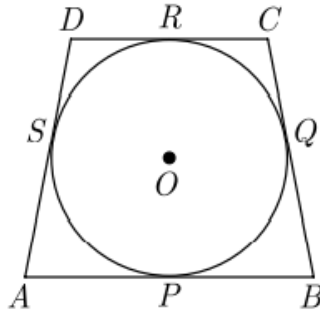
- 18) In the given figure, if $\angle ACB = \angle CDA$, $AC = 6$ cm and $AD = 3$ cm, then find the length of AB .



SECTION- C

Section C consists of 5 questions of 3 mark each.

- 19) Prove that $\sqrt{5}$ is an irrational number and hence show that $2\sqrt{5}$ is also an irrational number.
- 20) If α and β are the zeroes of a quadratic polynomial such that $\alpha + \beta = 24$ and $\alpha - \beta = 8$. Find the quadratic polynomial having α and β as its zeroes.
- OR
- 4 chairs and 3 tables cost Rs 2100 and 5 chairs and 2 tables cost Rs 1750. Find the cost of one chair and one table separately.
- 21) Prove that $(\sin A + \operatorname{cosec} A)^2 + (\cos A + \sec A)^2 = 7 + \tan^2 A + \cot^2 A$
- 22) In the figure a quadrilateral ABCD is drawn to circumscribe a circle, with centre O, in such a way that the sides AB, BC, CD, and DA touch the circle at the points P, Q, R and S respectively. Prove that. $AB + CD = BC + DA$.



OR

Prove that the lengths of two tangents drawn from an external point to a circle are equal.

- 23) One card is drawn from a well shuffled deck of 52 cards. Find the probability of getting
- Non face card,
 - Black king or a Red queen,
 - Spade card.

SECTION- D

Section D consists of 3 questions of 5 mark each.

- 24) A student scored a total of 32 marks in class tests in mathematics and science. Had he scored 2 marks less in science and 4 more in mathematics, the product of his marks would have been 253. Find his marks in two subjects.

OR

A fast train takes 3 hours less than a slow train for a journey of 60 km. If the speed of the slow train is 10 km/h less than that of the fast train, find the speed of each train.

- 25) The angles of depression of the top and bottom of an 8 m tall building from top of a multi-storeyed building are 30° and 45° , respectively. Find the height of the multi-storeyed building and the distance between two buildings.
- 26) If the diagonals of a quadrilateral divide each other proportionally, prove that it is a trapezium.

SECTION- E

Section E consists of 2 questions of 4 mark each.

- 27) Salary : In investigating different job opportunities, you find that firm A will start you at Rs 25,000 per year and guarantee you a raise of Rs 1,200 each year whereas firm B will start you at Rs 28,000 per year but will guarantee you a raise of only Rs 800 each year.

- (i) What would be your annual salary at firm A for the tenth year? (1 mark)
- (ii) What would be your annual salary at firm B for the tenth year? (1 mark)
- (iii) Over a period of 15 years, how much would you receive from firm A? (2 marks)

OR

- (iii) Over a period of 15 years, how much would you receive from firm B?

28) To conduct sports day activities, in a rectangular shaped school ground ABCD, lines have been drawn with chalk powder at a distance of 1 m each. 100 flower pots have been placed at a distance of 1 m from each other along AB, as shown in figure. Nishtha runs $\frac{1}{4}^{\text{th}}$ the distance AB on the 2nd line and posts a green flag. Suman runs $\frac{1}{5}^{\text{th}}$ the distance AB on the 8th line and posts a red flag.

- (i) What are the positions of green flag and red flag? (1mark)
- (ii) What is the distance of red flag from point A? (1 mark)
- (iii) What is the distance between both the flags? (2 marks)

OR

- (iii) If Rakhi has to post a blue flag exactly halfway between the line segment joining the two flags, where should she post her flag?

