GOVERNMENT URDU HIGH SCHOOL, KEREBILCHI,

CLASS: 10th **PAPER-1** **MARKS: 50**

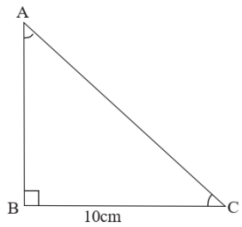
SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet** 5x1=5

1. The nth term of an arithmetic progression is $a_n = 4n + 5$ then the 3rd term is
   a) 5 b) 9 c) 13 d) 17
2. A straight line intersecting a circle at two points is called
   a) a secant b) a tangent c) radius d) a normal
3. If the pair of Linear equations $x + 2y = 3$ and $2x + 4y = k$ are coincide then the value of 'k' is:
   a) 3 (b) 6 c) -3 d) -6
4. If the roots of the quadratic equation $x^2 + 6x + k = 0$ are equal, then the value of 'k' is :
   a) 9 (b) -9 c) 8 d) 5
5. The value of $\sin 60° \times \cos 30°$ is :
   a) $\frac{1}{4}$ (b) $\frac{\sqrt{3}}{4}$ c) $\frac{3}{4}$ d) $\frac{1}{2}$

II. **Answer the following questions :** **5x1=5**

6. How many solutions have the pair of linear equations $2x + 3y - 9 = 0$and$4x + 6y - 18 = 0$?
7. Write the standard form of a quadratic equation.
8. In the figure $\angle B = 90°$, $\angle A = \angle C$and $BC = 10cm$, then find the value of $tan45°$.



9. Write the co-ordinates of the midpoint of the line segment joining the points $A(x_1, y_1)$ and $B\ (x_2, y_2)$.
10. Find the median of the scores 5, 8, 14, 16, 19 and 20 ?

III. **Answer the following questions.** **8x2=16**

11. Find the sum of series 3 + 7 + 11 +..... Up to 10 terms using the suitable formula.
12. Find the 10th term of arithmetic progression 2, 7, 12 ..... using the formula.
13. Solve the following pair of linear equations :
    $3x + y = 15$,
    $2x - y = 5$
14. Find the distance between the points A (3, 6) and B (5, 7) using distance formula.
    Or
    Find the co-ordinates of the point P, which divides the line joining A (0, 0) and B (5, 10) in the ratio of 2:3.
15. Draw a circle of radius 4 cm and construct tangents to it from a point 8 cm away from the centre.
16. Solve by using quadratic formula : $x^2 - 3x + 1 = 0$
17. Find the discriminant of the quadratic equation $2x^2 - 6x + 3 = 0$ and hence write the nature of roots.
    Or
    Prove that the quadratic equation $x^2 + ax - 4 = 0$ has distinct, real roots.
18. Show that $\tan 48° . \tan 23° . \tan 42° . \tan 67° = 1$

IV. **Answer the following questions.** **5x3=15**

19. Prove that "The lengths of tangents drawn from an external point to a circle are equal".
    Or
    Prove that the tangents drawn at the ends of a diameter of a circle are parallel.
20. Find the value of 'k'. If the co-ordinates of the points A (2, -2), B (-4, 2) and C(-7, k) are collinear.
21. Construct a triangle with sides 6 cm, 7 cm and 8 cm and then construct another triangle whose sides are$\frac{3}{4}$ of the corresponding sides of the constructed triangle.

22. A survey was conducted by a group of students as a part of their environment awareness programme, in which they collected the following data regarding the number of plants in 20 houses in a locality. Find the mean number of plants per house.

Number of plants	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12	12 - 14
Number of houses	1	2	1	5	6	2	3

Or

The following data gives the information on the observed lifetimes (in hours) of 225 electrical components:

Lifetimes (in hours)	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	100 - 120
Frequency	10	35	52	61	38	29

Determine the modal lifetimes of the components.

23. The following distribution gives the daily income of 50 workers of a factory.

Daily income (in Rs)	100 - 120	120 - 140	140 - 160	160 - 180	180 - 200
Number of workers	12	14	8	6	10

Convert the distribution above to a less than type cumulative frequency distribution, and draw its ogive.

V. **Answer the following** **1x4=4**

24. Find the solution of the following pair of linear equations by the graphical method.

$x + y = 7,$

$x - y = 3$

VI. **Answer the following** **1x5=5**

25. State and prove Thale's theorem.

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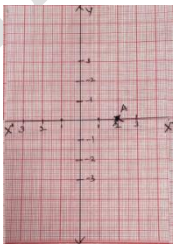
GOVERNMENT URDU HIGH SCHOOL, KEREBILCHI

CLASS: 10th **PAPER-2** **MARKS: 50**

SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

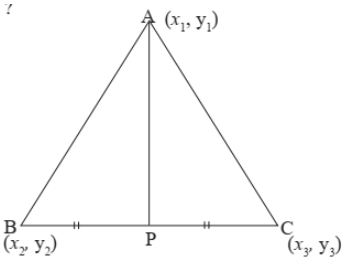
I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet. 5x1=5**

1. The Pair of lines $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$are intersecting lines then the ratio of their coefficients is :
   a) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ b) $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ c) $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ d) $\frac{a_1}{a_2} = \frac{b_1}{b_2}$
2. 2, *x*, 14 are in Arithmetic progression, then the value of *x* is
   a) 28 b) 16 c) 7 d) 8
3. The standard form of quadratic equation is :
   a) ax^2-$bx + c = 0$ b) $ax^2 + bx + c = 0$ c) ax^2-bx-$c = 0$ d)$ax^2 + bx$-$c = 0$
4. Sin $(90 - \theta)$ is equal to :
   a) Cos θb) tan θ c) Sec θd)Cot θ
5. In the given graph. The co-ordinate of point A is
   a) (-1, 0)b) (1, -1) c) (0, 2) d)(2, 0)



II. **Answer the following questions :** **5x1=5**

6. In equation $x + y = 7$, if$x = 3$, then find the value of y?
7. In the given figure "P" is a midpoint of BC; write the formula to find the coordinate of P?
8. Write the measure of angle formed between tangent to a circle and radius drawn from the centre of the circle to the point of contact of the tangent.
9. In an arithmetic progression if $a_n = 3n - 2$, then find the second term of the progression.
10. If,$15 \cot A = 8$, then, find the value of tan A?



III. **Answer the following questions.** **8x2=16**

11. Find the sum of 5 + 8 + 11 + ... to 10 terms using the formula.
12. Find the 25th term of an arithmetic progression 2, 6, 10, 14, ...
13. Solve the following pair of linear equations :
    $x + y = 5$,
    $2x - 3y = 4$
14. Find the distance between the points (– 5, 7) and (– 1, 3)
    Or
    Find the coordinates of the point which divides the join of (–1, 7) and (4, –3) in the ratio 2: 3.
15. Draw a line segment of AB=8cm and divide it in the ratio 3:2 by geometrical construction.
16. Solve by using quadratic formula : $2x^2 - 7x + 3 = 0$
    Or
    Solve the equation by factorisation:$x^2 - 3x - 10 = 0$
17. Find the discriminant of the equation $3x^2 - 5x + 2 = 0$ and hence write the nature of its roots.
18. In ΔABC right angled at B, $AB = 24\ cm$, $BC = 7\ cm$. Determine$sinA$ and $cosA$

IV. **Answer the following questions.** **5x3=15**

19. Prove that "The tangent at any point of a circle is perpendicular to the radius through the point of contact".
    Or
    Prove that the perpendicular at the point of contact to the tangent to a circle passes through the centre.
20. Find the area of triangle whose vertices are (2, 3), (–1, 0) and (2, – 4).

21. Construct a triangle with sides 4cm, 5cm, and 6cm and then another triangle whose sides are $\frac{5}{3}$ of the corresponding sides of the first triangle.
22. A class teacher has the following absentee record of 40 students of a class for the whole term. Find the mean number of days a student was absent.

Number of days	0 - 6	6 - 10	10 - 14	14 - 20	20 - 28	28 - 38	38 - 40
Number of absent	11	10	7	4	4	3	1

Or

Find the median for the following frequency distribution.

CI	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75
f	2	3	8	6	6	3	2

23. Draw a less than type ogive for the given data. Hence obtain the median weight from the graph and verify the result by using the formula.

Production yield (in kg/ha)	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80
Number of farms	2	8	12	24	38	16

Change the distribution to a more than type distribution, and draw its ogive.

V. **Answer the following** **1x4=8**

24. Find the solution of the following pair of linear equations by the graphical method.

$x + y = 7,$

$3x - y = 1$

VI. **Answer the following** **1x5=5**

25. State and prove "Pythagoras theorem".

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GOVERNMENT URDU HIGH SCHOOL, KEREBILCHI

CLASS: 10th **PAPER -3** **MARKS: 50**

SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet. 5x1=5**

1. If the *nth* term of an arithmetic progression $a_n = 3n - 2$, then its 9th term is
   a)-25b) 5 c) -5d) 25
2. The system of equations $kx - y = 2$ and $6x - 2y = 3$ has a unique solution when:
   a)$k = 0$(b) $k \neq 0$c) $k = 3$d) $k \neq 3$
3. The distance between the point(x, y) and the origin is
   a) $\sqrt{x^2 - y^2}$ b) $\sqrt{x^4 - y^4}$ c) $\sqrt{x^2 + y^2}$ d)$\sqrt{x^2 + y^4}$
4. The value of $\sec^2 26° - \tan^2 26°$is
   a) $\frac{1}{2}$ b) 0 c) 2 d) 1
5. "The product of two consecutive positive integers is 30." This can be expressed algebraically as
   a) $x(x + 2) = 30$b) $x(x - 2) = 30$c) $x(x - 3) = 30$ d)$x(x + 1) = 30$

II. **Answer the following questions : 5x1=5**

6. State Pythagoras theorem.
7. Find the median of 2, 3, 2, 5, 6, 9, 10, 12, 16, 18 and 20.
8. Find the value of tan 45° + cot 45°
9. In an arithmetic progression, if$a_n = 2n + 1$, then find the common difference.
10. How many solutions have the pair of linear equations $2x + 3y - 9 = 0$ and $4x + 6y - 18 = 0$?

III. **Answer the following questions. 8x2=16**

11. Find the sum of first twenty terms of Arithmetic series 2 + 7 + 12 + ... using suitable formula.
12. Which term of the AP, 8, 3, -2… is 78?
13. Solve the following pair of linear equations :
    $x + y = 14$,
    $x - y = 4$
14. The distance between the points (3, 1) and (0, *x)* is 5 units. Find *x*
    Or
    Find the coordinates of the mid-point of the line segment joining the points (2, 3) and (4, 7).
15. Draw a pair of tangents to a circle of radius 4cm which are inclined to each other at an angle of 70° and write the measure of its length.
16. Solve by using quadratic formula : $2x^2 + x - 4 = 0$
17. Find the values of *k* for the quadratic equation$2x^2 + kx + 3 = 0$, so that they have two equal roots.
    Or
    Find the discriminant of the equation $2x^2 - 5x - 1 = 0$ and hence write the nature of its roots.
18. Evaluate $2tan^2 45° + cos^2 30° - sin^2 60°$

IV. **Answer the following questions. 5x3=15**

19. Prove that "The lengths of tangents drawn from an external point to a circle are equal*"*.
    Or
    Prove that "The tangent at any point of a circle is perpendicular to the radius through the point of contact".
20. The points *A* (1, 1), *B* (3, 2) and *C* (5, 3) cannot be the vertices of the triangle *ABC*. Justify.
21. Construct a triangle ABC of its sides BC=4cm, AB=6cm and AC=4.5cm then construct a triangle similar to it, whose sides are $\frac{2}{3}$of the corresponding sides of the triangle ABC.
22. Find the median for the following data in the frequency distribution table :

Weight (in kg)	15-20	20-25	25-30	30-35	35-40
Number of students	2	3	6	4	5

Or

Find the mode for the following data in the frequency distribution table

Family size	1-3	3-5	5-7	7-9	9-11
Number of families	7	8	2	2	1

23. During the medical check-up of 35 students of a class, their weights were recorded as follows. Draw a 'less than type ogive' for the given data.

Weight (in kg)	Number of students
Less than 38	0
Less than 40	3
Less than 42	5
Less than 44	9
Less than 46	14
Less than 48	28
Less than 50	32
Less than 52	35

V. **Answer the following** **1x4=4**

24. Find the solution of the following pair of linear equations by the graphical method.

$2x + y = 8,$

$x - y = 1$

VI. **Answer the following** **1x5=5**

25. Prove that "If in two triangles, corresponding angles are equal, then theircorresponding sides are in the same ratio (or proportion) and hence the twotriangles are similar".

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GOVERNMENT URDU HIGH SCHOOL, KEREBILCHI

CLASS: 10th **PAPER-4** **MARKS: 50**

SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet. 5x1=5**

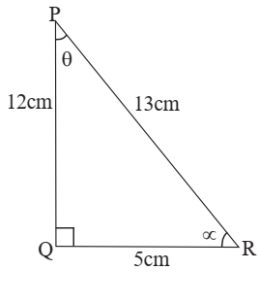
1. Next term of the AP: 9, 11, 13, 15, …is:
   (a) 20 (b) 17(c) 18(d) 19
2. A straight line passing through a point on a circle is
   a) a tangent b) a secant c) a radius d) a transversal
3. The value of k for which $kx + 2y = 5$ and $3x + y = 1$ have unique solution,is:
   a) $k = -1$ (b) $k \neq 6$c) $k = 6$ d) $k = 2$
4. The discriminant of the equation $ax^2 + bx + c = 0$,where$a \neq 0$
   a)$b^2 - 4ac$ b) $a^2 + 4bc$ c)$a^2 - 4bc$d)$b^2 + 4bc$
5. The value of sin 30° + cos 60° is
   a) $\frac{1}{2}$ b) $\frac{3}{2}$ c)$\frac{1}{4}$ d) 1

II. **Answer the following questions : 5x1=5**

6. State Pythagoras theorem.
7. If point $P(x, y)$ divides the line segment joining the points$A(x_1, y_1)$ and $B(x_2, y_2)$ in the ratio $k:1$ then write the coordinates of the point P.
8. 2, *x*, 14 are in Arithmetic progression, then find the value of *x*
9. If system of equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ has infinitely many solutions,then write the ratio of their coefficient.
10. Write mode of 1, 0, 2, 2, 3, 1, 4, 5, 1, 0.

III. **Answer the following questions. 8x2=16**

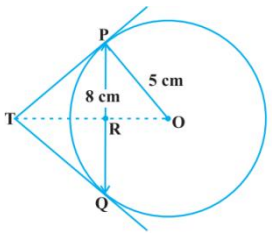
11. If the sum of the first 14 terms of an AP is 1050 and its first term is 10, find the 20th term.
12. Find the sum of the first 30 positive integers divisible by 6.
13. Solve the following pair of linear equations :
    $x + y = 8$,
    $2x - y = 7$
14. Find the coordinates of the point which divides the line joining the points (1, 6) and (4, 3) in the ratio 1 : 2.
    Or
    If A and B are (– 2, – 2) and (2, – 3), respectively, find the coordinates of P such that $AP = \frac{3}{7}AB$and P lies on the line segment AB.
15. Construct tangents to a circle of radius 5cm such that the angle between the tangents is 60°.
16. Solve by using quadratic formula : $4x^2 + 4\sqrt{3}x + 3 = 0$
17. Find the values of *k* for the quadratic equation $kx(x - 2) + 6 = 0$, so that they have two equal roots.
    Or
    Find the discriminant of the equation $2x^2 - 4x + 3 = 0$and hence write the nature of its roots.
18. In the figure given below find the value of $sin\theta$and $\propto$?



IV. **Answer the following questions. 5x3=15**

19. Prove that "The tangent at any point of a circle is perpendicular to the radius through the point of contact".
    Or

PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at a point T. Find the length TP.



20. Find the area of a triangle whose vertices are (1, – 1), (– 4, 6) and (– 3, – 5).
21. Draw a right triangle in which the sides (other than hypotenuse) are of lengths 4 cm and 3 cm. Then construct another triangle whose sides are $\frac{5}{3}$ times the corresponding sides of the given triangle.
22. Calculate the 'mean' for the frequency distribution table given below, by direct method.

Classinternal	5-15	15-25	25-35	35-45	45-55
Frequency	4	3	6	5	2

Or

The following table shows the ages of the patients admitted in a hospital during a year: Find the mode

Age (in years)	5 - 15	15 - 25	25 - 35	35 - 45	45 - 55	55 - 65
Number of patients	6	11	21	23	14	5

23. The following table gives the production yield per hectare of wheat of 100 farms of a village. Draw a 'more than type ogive' for the given data.

Production yield in kg/hectare	Cumulative Frequency
More than or equal to 50	100
More than or equal to 55	98
More than or equal to 60	90
More than or equal to 65	78
More than or equal to 70	54
More than or equal to 75	16

V. **Answer the following** **1x4=4**

24. Find the solution of the following pair of linear equations by the graphical method.

$2x + y = 6,$

$2x - y = 2$

VI. **Answer the following** **1x5=5**

25. Prove that "The ratio of the areasof two similar triangles is equal to thesquare of the ratio of theircorresponding sides".

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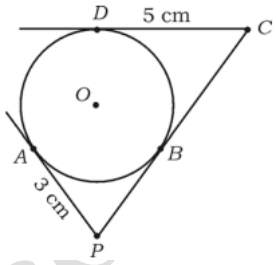
CLASS: 10th **PAPER-5** **MARKS: 50**

SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet.** **5x1=5**

1. The fifteenth term of the AP: –23, –19, –15, …is:
   (a) 30(b) 31 (c) 32 (d) 33
2. In the following figure, *PA*, *PC* and *CD* are tangents drawn to a circle ofcentre *O*. If *AP* = 3 cm, *CD* = 5 cm, then the length of *PC* is:
   a) 3 cm b) 5 cm c) 8 cm d) 2 cm



3. Thepairofequations$3x + 2y = 5, 2x - 3y = 7$has:
   a) Nosolution (b) onesolution c) many solutions d) twosolutions
4. If the roots of a quadratic equation are equal, then the discriminantis:
   (a) 1(b) 0 (c) greater than0 (d) less than0
5. The value of $cos\ 48° - sin\ 42°$ is

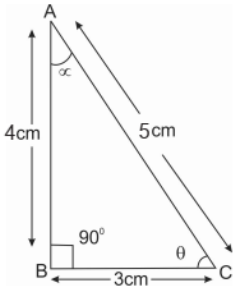
   a) 0 (b) $\frac{1}{4}$ c)$\frac{1}{2}$ d) 1

II. **Answer the following questions :** **5x1=5**

6. Write the formula to find the sum of the first *n* terms of an Arithmeticprogression, whose first term is *a* and the last term, is a_n.
7. The value of k for which the system of equation $2x + 3y = 5 \& 4x + ky = 10$ has an infinite number of solutions.
8. Write value of the discriminant of the quadratic equation $ax^2 + bx + c = 0$.
9. A tangent PQ at a point P of a circle of radius 5cm meets a line through the centre O at a point Q so that OQ = 12cm. Find length PQ.
10. Find the distance of point (–6, 8) from the origin.

III. **Answer the following questions.** **8x2=16**

11. Find the sum of 2+5+8+..... Up to 20 terms using the suitable formula.
12. In an AP 3, 8, 13 …253 find 20th term from last.
13. Solve the following pair of linear equations :
    $2x + 3y = 11,$
    $2x - 4y = -24$
14. Find the values of *y* in which the distance between the points *P* (2, – 3) and *Q* (10, *y)* is 10 units.
    Or
    Find the distance between the co-ordinate of the points A (2, 3) and B (10, -3).
15. Draw a circle of radius 4cm and to it draw tangents through the end points of the radii if the angle between the radii is 80°.
16. Solve by using quadratic formula : $2x^2 + x + 4 = 0$
    Or
    Solve by factorisation method $5x^2 - 6x - 2 = 0$
17. Find the discriminant of the quadratic equation $3x^2 - 2x + \frac{1}{3} = 0$ and hence write the nature of roots.
18. In the given figure, find the value of $\sin \propto + \cos\theta$?



IV. **Answer the following questions.** **5x3=15**

19. Prove that "The lengths of tangents drawn from an external point to a circle are equal".
    Or
    Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

20. The vertices of a Δ *ABC* are *A* (–5, – 1), *B* (3, – 5), *C* (5, 2). Show that the area of the Δ *ABC* is four times the area of the triangle formed by joining the mid-points of the sides of the triangle *ABC*

21. Construct a triangle with sides 5 cm, 6 cm and 7 cm and then another triangle whose sides are $\frac{7}{5}$of the corresponding sides of the first triangle.

22. Find the median of the data.

CI	65 - 85	85- 105	105 - 125	125 - 145	145 - 165	165 - 185	185 - 205
f	4	5	13	20	14	8	4

Or

Find the mode of the following data

Class interval	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	
Frequency	6	9	15	9	1	N=40

23. The following table gives the information of daily income of 50 workers of a factory. Draw a 'less than type ogive' for the given data

Daily Income	Number of workers
Less than 100	0
Less than 120	8
Less than 140	20
Less than 160	34
Less than 180	44
Less than 200	50

V. **Answer the following** **1x4=4**

24. Find the solution of the following pair of linear equations by the graphical method.

$2x + y = 10$,

$x + y = 6$

VI. **Answer the following** **1x5=5**

25. State and prove basic proportionality theorem.

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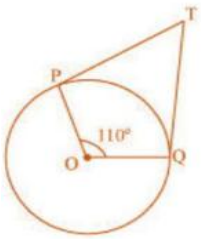
CLASS: 10th **PAPER-6** **MARKS: 50**

SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet. 5x1=5**

1. If the 1st term of an AP is *m* and common difference is *n*, then the tenth term is
   (a)$m + 10n$(b) $m + 9n$ (c)$m - 9n$ (d) $2m + 9$
2. $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ is the condition for
   a) Intersectinglines (b) Parallellines c) Coincidentlines d) None ofthese
3. The value of $\tan^2 60° + 2\tan^2 45°$ is
   a) 5 b) $\sqrt{3} + 1$ c) 4 d)$\sqrt{3} + 2$
4. The number of possible solutions of a quadratic equationare:
   (a)Exactlytwo (b) Atmost two (c) Atleasttwo (d) None ofthese
5. In the given figure, if TP and $TQ$are the two tangents to a circle with centre O so that $\angle POQ = 110°$, then $\angle PTQ$ is equal to
   (a) 60° (b) 70° (c) 80° (d) 90°



II. **Answer the following questions :** **4x1=4**

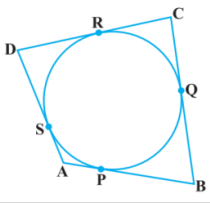
6. State Pythagoras theorem.
7. Write the distance of point (2, 3) from the *x*-axis.
8. Find the median of 2, 3, 6, 0, 1, 4, 8, 2, 5.
9. Write the discriminant of the quadratic equation$ax^2 + c = 0$.
10. How many solutions have the pair of linear equations $2x + 3y + 9 = 0$ and $4x + 6y - 18 = 0$?

III. **Answer the following questions.** **8x2=16**

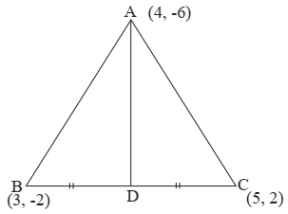
11. How many terms of the AP: 24, 21, 18 . . . must be taken so that their sum is 78?
12. How many three-digit numbers are divisible by 7?
13. Solve the following pair of linear equations :
    $2x + y = 11$,
    $x + y = 8$
14. Find the distance between origin and the point Or
    Find the coordinates of a point A, where AB is the diameter of a circle whose centre is (2, – 3) and B is (1, 4).
15. Drawa circle of radius 3 cm. Take two points P and Q on one of its extended diameter each at a distance of 7 cm from its centre. Draw tangents to the circle from these two points P and Q
16. Solve by using quadratic formula : $x^2 - 2x + 3 = 0$
    Or
    Solve by factorisation: $x^2 + 7x + 12 = 0$
17. Find the nature of the roots of the quadratic equation$4x^2 - 4x + 1 = 0$.
18. If $sinA = \frac{3}{4}$, calculate cos$A$ and tan$A$

IV. **Answer the following questions.** **5x3=15**

19. Prove that "The tangent at any point of a circle is perpendicular to the radius through the point of contact".
    Or
    A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC



20. Find the area of triangle ABC, whose co-ordinates are A(4, -6), B(3, -2) and C(5, 2) then find the length of the median AD?



21. Construct an isosceles triangle whose base is 8 cm and altitude 4 cm and then another triangle whose sides are $1\frac{1}{2}$ times the corresponding sides of the isosceles triangle.

22. Find the mean of the following data, by direct method

Class interval	1 - 5	5 - 9	9 - 13	13 - 17	17 - 21	
Frequency	4	3	5	7	1	N=20

Or

The following distribution gives the state-wise teacher-student ratio in higher secondary schools of India. Find the mode.

Number of students per teacher	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55
Number of states / U.T.	3	8	9	10	3	0	0	2

23. The following table gives production yield per hectare of wheat of 100 farms of a village.

Production yield in kg/hectare	50-55	55-60	60-65	65-70	70-75	75-80
Number of farms	2	8	12	24	38	16

Change the distribution to a more than type distribution, and draw its ogive.

V. **Answer the following** **1x4=4**

24. Find the solution of the following pair of linear equations by the graphical method.

$x + y = 5,$

$2x - y = 4$

VI. **Answer the following** **1x5=5**

25. Prove that "In a right-angled triangle square of the hypotenuse is equal to sum of the squares on the other two sides".

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GOVERNMENT URDU HIGH SCHOOL, KEREBILCHI

CLASS: 10th **PAPER-7** **MARKS: 50**

SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet. 5x1=5**

1. The *n*th term of an arithmetic progression is $a_n = 4n + 5$ then the 3rd term is
   a) 17 b) 12 c) 8 d) 9
2. The sum of first *n* natural numbersis:
   (a)$\frac{n(n+1)}{2}$ (b)$\frac{n(n^2+1)}{2}$ (c)$n+1$ (d) n^2
3. The value of$\tan 45°$ is
   a) $\sqrt{3}$ b) 0 c) 1 d)$\frac{1}{\sqrt{3}}$
4. For a pair of equation to be consistent and dependent, the pair musthave:
   a) nosolution (b) unique solution c) infinitelymanysolutions d) none ofthese
5. If the roots of $ax^2+bx+c = 0$ be equal, then the value of *c*is
   (a)$\frac{-b}{2a}$ (b)$\frac{b}{2a}$ (c) $\frac{-b^2}{4a}$ (d) $\frac{b^2}{4a}$

II. **Answer the following questions : 5x1=5**

6. Find the value of $\text{cosec}\,70° - sec20°$.
7. Find the coordinates of the midpoint of the line segment joining the points (6, 2) and (4, 4).
8. The length of a tangent from a point A at distance 5 cm from the centre of the circle is 4cm. Find the radius of the circle.
9. How many solutions have the pair of linear equations $x + 3y - 9 = 0$ and $4x + 6y - 18 = 0$?
10. State the converse of Pythagoras theorem.

III. **Answer the following questions. 8x2=16**

11. In an AP -3, $-\frac{1}{2}$, 2,….find 11th term.
12. Which term of the AP 21, 18, 15 … is -81?
13. Solve the following pair of linear equations :
    $x + y = 5$,
    $2x - 3y = 5$
14. Find the point on the *x*-axis which is equidistant from (2, –5) and (–2, 9).
    Or
    In what ratio does the point (– 4, 6) divide the line segment joining the points A (– 6, 10) and B (3, – 8)?
15. Draw a line segment AB of length 8 cm. Taking A as centre, draw a circle of radius 4 cm and taking B as centre, draw another circle of radius 3 cm. Construct tangents to each circle from the centre of the other circle.
16. Solve by using quadratic formula : $5x^2 - 6x - 2 = 0$
17. Find the discriminant of the quadratic equation $2x^2$-$6x + 3 = 0$and hence write the nature of roots
    Or
    Find the nature of the roots of the quadratic equation$3x^2 - 5x + 2 = 0$
18. Given 15 $cot\ A = 8$, findsin A andsec A

IV. **Answer the following questions. 5x3=15**

19. Prove that "The lengths of tangents drawn from an external point to a circle are equal".
    Or
    Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line-segment joining the points of contact at the centre.

20. Find the area of the triangle formed by the points P(–1.5, 3), Q(6, –2) and R(–3, 4).

    Or

    Find the area of the quadrilateral whose vertices, taken in order, are (– 4, – 2), (– 3, – 5), (3, – 2) and (2, 3).

21. Draw a triangle ABC with side BC = 6 cm, AB = 5 cm and $\angle ABC = 60°$. Then construct a triangle whose sides are $\frac{3}{4}$of the corresponding sides of the triangle ABC.

22. Find the median of the following data :

Class interval	20 - 40	40 - 60	60 – 80	80 – 100
Frequency	7	15	20	8

    Or

    Find the 'mode' of the frequency distribution table given below.

Class interval	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
Frequency	7	9	15	11	8

23. The following table gives the production yield per hectare of wheat of 100 farms of a village. Draw a 'more than type ogive' for the given data.

Production yield in kg/hectare	Cumulative Frequency
More than or equal to 50	100
More than or equal to 55	98
More than or equal to 60	90
More than or equal to 65	78
More than or equal to 70	54
More than or equal to 75	16

V. **Answer the following** **1x4=4**

24. Find the solution of the following pair of linear equations by the graphical method.

    $y = 2x + 1$,

    $x = 2y - 5$

VI. **Answer the following** **1x5=5**

25. Prove that "The ratio of the areasof two similar triangles is equal to thesquare of the ratio of theircorresponding sides".

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GOVERNMENT URDU HIGH SCHOOL, KEREBILCHI

CLASS: 10th **PAPER-8** **MARKS: 50**

SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet. 5x1=5**

1. The formula to find the sum of the first *n*terms of an Arithmeticprogression, whose first term is *a*and the last term isa_n
   a) $S_n = \frac{n}{2}(a + a_n)$b) $S_n = \frac{n}{2}(a + d)$c) $a_n = a(n + 1) + d$ d) $S_n = \frac{n}{2}(a - a_n)$
2. The empirical relationship between the three measures of central tendency is :
   a) 2 Median = Mode + 3 Mean
   b) 3 Median = Mode + 2 Mean
   c) Median = Mode + Mean
   d)Median = Mode - Mean
3. On solving$x - y = 3$, $x + y = 5$, we have value of y as:
   a) 1 (b) 2 c) 3 d) 4
4. The distance of the point p(4, 3) from the *x*- axis is :
   a) 2 units (b) 3 units c) 4 units d) 5 units
5. A straight line intersecting a circle at two distinct points is called
   a) a secant b) a tangent c) radius d) a normal

II. **Answer the following questions : 5x1=5**

6. State 'Thale's theorem?
7. Find the value of $tan\theta - cot\ (90° - \theta\ )$
8. Find the quadratic equation whose roots are a and $\frac{1}{a}$.
9. If point $P(x, y)$ divides the line segment joining the points$A(x_1, y_1)$ and $B(x_2, y_2)$ in the ratio $m_1 : m_2$ then write the coordinates of the point P.
10. If the pair of equation $2x + 3y = 5$ and $10x + 15y = 2k$ represents two coincident lines then find the value of k.

III. **Answer the following questions. 8x2=16**

11. Find the sum of the AP 8, 3, -2,……. Upto 22 terms.
12. In an AP 21, 18, 15… find 35th term
13. Find the value of *k*, if the pair of linear equations $2x - 3y = 8$ and $2\ (k - 4)\ x - ky = k + 3$ are inconsistent.
14. Check whether (5, – 2), (6, 4) and (7, – 2) are the vertices of an isosceles triangle.
    Or
    Find the coordinates of the points of trisection of the line segment joining (4, –1)and (–2, –3).
15. Construct a tangent to a circle of radius 4 cm from a point on the concentric circle of radius 6 cm and measure its length. Also verify the measurement by actual calculation.
16. Solve by using quadratic formula : $x\ (\ x + 1\ ) = 6x + 24$
17. Find the nature of the roots of the quadratic equation$x^2 - 4\,x + 4 = 0$
    Or
    Find the values of *k* for the quadratic equation$2x^2 - kx + 3 = 0$, so that they have two equal roots.
18. If $tan\ 2A = cot\ (A - 18°)$, where 2A is an acute angle, find the value of A.

IV. **Answer the following questions. 5x3=15**

19. Prove that "The tangent at any point of a circle is perpendicular to the radius through the point of contact".
    Or

Prove that the parallelogram circumscribing a circle is a rhombus.

20. Find the value of 'k', for which the points A(2, 3), B(4, k) and C(6, –3)are collinear.
21. Draw a triangle ABC with side BC = 7 cm, ∠ B = 45°, $\angle A = 105°$. Then, construct a triangle whose sides are$\frac{4}{3}$ times the corresponding sides ofΔABC.
22. Calculate the 'mean' for the frequency distribution table given below, by direct method.

Class internal	5-15	15-25	25-35	35-45	45-55
Frequency	4	3	6	5	2

Or

Calculate the median of the following frequency distribution table:

Class-interval	1 - 4	4 - 7	7 - 10	10 - 13	13 - 16	16 - 19
Frequency ($f\,i$)	6	30	40	16	4	4

23. Draw a "less than type ogive" for the data given in the following table.

Class internal	0 - 10	10-20	20-30	30-40	40-50
Frequency	2	12	2	4	3

V. **Answer the following** **1x4=4**

24. Find the solution of the following pair of linear equations by the graphical method.

$2x + y = 3,$

$x + 3y = -1$

VI. **Answer the following** **1x5=5**

25. Prove that "If in two triangles, corresponding angles are equal, then theircorresponding sides are in the same ratio (or proportion) and hence the twotriangles are similar"

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GOVERNMENT URDU HIGH SCHOOL, KEREBILCHI

CLASS: 10th **PAPER -9** **MARKS: 50**

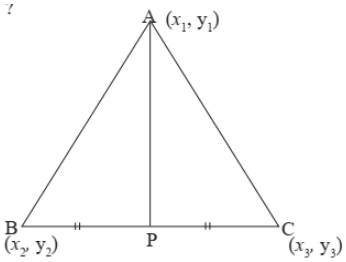
SUBJECT: MATHS **APRIL 2020-21** **TIME: 2:00 hr**

I. **Four choices are given for each of incomplete / statement / questions.Choose the correct answer and write the complete answer along withits letter of alphabet. 5x1=5**

1. If the *nth* term of an arithmetic progression $a_n = 3n - 2$, then its 9th term is
   a) -25 b) 5 c) -5 d) 25
2. The system of equations $kx - y = 2$ and $6x - 2y = 3$ has a unique solution when:
   a) $k = 0$ (b) $k \neq 0$ c) $k = 3$ d) $k \neq 3$
3. The distance between the points (x, y) and the origin is
   a) $\sqrt{x^2 - y^2}$ b) $\sqrt{x^4 - y^4}$ c) $\sqrt{x^2 + y^2}$ d)$\sqrt{x^2 + y^4}$
4. The standard form of quadratic equation is :
   a) $ax^2 - bx + c = 0$ b) $ax^2 + bx + c = 0$ c) $ax^2 - bx - c = 0$ d)$ax^2 + bx - c = 0$
5. The value of $\sec^2 26° - \tan^2 26°$is
   a) $\frac{1}{2}$ b) 0 c) 2 d) 1

II. **Answer the following questions : 5x1=5**

6. In equation $x + y = 7$, if$x = 3$, then find the value of y?
7. In the given figure "P" is a midpoint of BC; write the formula to find the coordinate of P?
8. Write the measure of angle formed between tangent to a circle and radius drawn from the centre of the circle to the point of contact of the tangent.
9. In an arithmetic progression if $a_n = 3n - 2$, then find the second term of the progression.
10. If,$15 \cot A = 8$, then, find the value of tan A?



III. **Answer the following questions. 8x2=16**

11. Find the sum of first twenty terms of Arithmetic series 2 + 7 + 12 + ... using suitable formula.
12. Which term of the AP, 8, 3, -2… is 78?
13. Solve the following pair of linear equations :
    $x + y = 14$,
    $x - y = 4$
14. The distance between the points (3, 1) and (0, *x)* is 5 units. Find *x*
    Or
    Find the coordinates of the mid-point of the line segment joining the points (2, 3) and (4, 7).
15. Draw a pair of tangents to a circle of radius 4cm which are inclined to each other at an angle of $70°$ and write the measure of its length.
16. Solve by using quadratic formula : $2x^2 + x - 4 = 0$
17. Find the values of *k* for the quadratic equation$2x^2 + kx + 3 = 0$, so that they have two equal roots.
    Or
    Find the discriminant of the equation $2x^2 - 5x - 1 = 0$ and hence write the nature of its roots.
18. Evaluate $2tan^2 45° + cos^2 30° - sin^2 60°$

IV. **Answer the following questions. 5x3=15**

19. Prove that "The lengths of tangents drawn from an external point to a circle are equal*"*.
20. The points *A* (1, 1), *B* (3, 2) and *C* (5, 3) cannot be the vertices of the triangle *ABC*. Justify.
21. Construct a triangle ABC of its sides BC=4cm, AB=6cm and AC=4.5cm then construct a triangle similar to it, whose sides are $\frac{2}{3}$of the corresponding sides of the triangle ABC.
22. Find the median for the following data in the frequency distribution table :

Weight (in kg)	15-20	20-25	25-30	30-35	35-40
Number of students	2	3	6	4	5

Or

Find the mode for the following data in the frequency distribution table

Family size	1-3	3-5	5-7	7-9	9-11
Number of families	7	8	2	2	1

23. During the medical check-up of 35 students of a class, their weights were recorded as follows. Draw a 'less than type ogive' for the given data.

Weight (in kg)	Number of students
Less than 38	0
Less than 40	3
Less than 42	5
Less than 44	9
Less than 46	14
Less than 48	28
Less than 50	32
Less than 52	35

V. **Answer the following** **1x4=4**

24. Find the solution of the following pair of linear equations by the graphical method.

$2x + y = 8,$

$x - y = 1$

VI. **Answer the following** **1x5=5**

25. Prove that "If in two triangles, corresponding angles are equal, then theircorresponding sides are in the same ratio (or proportion) and hence the twotriangles are similar".

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