

General Instructions:

Total: 80 Marks

1. All questions are compulsory
2. Q 1 to 8 will carry 1 Mark
3. Q 9 to Q 16 each will be of 2 Marks
4. Q 17 to Q 24 each will be of 4 Marks.
5. Q 25 to Q 28 each will be of 6 Marks
6. There will be no overall choice. There will be an internal choice in any 3 questions of 4 marks each and all questions of 6 marks. (Total of 7 internal choices)
7. Use of Calculator is not allowed

SECTION – A

Answer all the questions each question carries 1 mark:

$$8 \times 1 = 8$$

1. Find the value of A and x if the no. $5A753x$ is completely divisible by 9. X is just one less than A?
2. The coordinates (4, -5) and (-6, -4) lie in which quadrant?
3. The ratio 9:13:14 is the ratio of 3 angles of triangle. find the measure of smallest angle?
4. If there is a triangle PQR that is isosceles and angle $P=70^\circ$, is not equal to any of the other angles what is the measure of other two angles?
5. Two diagonals of a parallelogram DEFG intersect at T and bisect each other at right angle. If length of diagonals is 32 and 24 find the length of the sides?
6. Two circles have the same center but different radii circle 1 has radius 16cm and circle 2 has radius 20cm a line passes through both the circles such the perpendicular to line is 12 cm. find the length of the line between the two circles.
7. If in a cone, radius is halved and height is doubled, then what will be the new volume?
8. There is a ball pool with some colored balls, the probability of picking red colored ball is $\frac{x}{5}$ if probability of picking other colored balls is $\frac{3}{5}$. What is value of x?

SECTION – B

Answer all the questions each question carries 2 marks:

$$8 \times 2 = 16$$

9. Find the integral zeroes of polynomial $x^3 + 3x^2 - 4x - 12$?
10. For the equation given below find the points where the line meets the axes $4x + 3y - 2 = 0$?
11. Find the value of C, if $x=2$, $y=-1$ in equation $7x - 4y = C$ and rewrite the equation in form of $ax + by + c = 0$ and write the values of a, b, c ?
12. Prove that there is only one point on any line segment that divides it into two equal halves and the line segment formed on either side is half of the original line?
13. Find the area of trapezium whose parallel sides 15cm and 8cm respectively and the distance between these sides is 9cm
14. A road roller has a length of 100cm and diameter is 70 cm. If it takes 30 revolutions of roller to level a ground then what will be the cost of tiling the ground if per 150 cm^2 is rupees 10?
15. The mean of 50 observations is 30; if one observation 10 is replaced by 60. Then what would be the new mean?
16. A box contains 60 bulbs and 100 CFL's. On checking it was found that half the bulbs and quarter of CFL's were damaged. If randomly one item is taken out what is the probability of it being broken?

SECTION – C

Answer all the questions according to the choice. Each question carries 4 marks:

$$8 \times 4 = 32$$

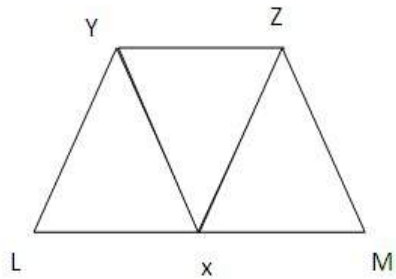
17. If $A = \frac{\sqrt{5}+1}{\sqrt{5}-1}$ and $B = \frac{\sqrt{5}-1}{\sqrt{5}+1}$ then find the value of A^2+B^2 ?
18. If $P^2 + \frac{1}{P^2} = 34$ find the values of each of the following:

- 1) $P + \frac{1}{P}$
- 2) $P - \frac{1}{P}$

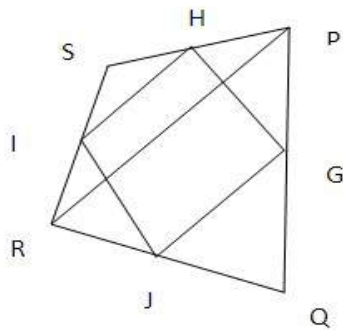
Or

Find the values of R and S such that the polynomial $x^3 - Rx^2 - 4x - S$ when divided by $(x - 3)$ gives a remainder is -49 and $S - R = 4$?

19. In the below given figure triangles XYZ, XYL and MXZ are equilateral triangles. Now prove that $MY = LZ$?



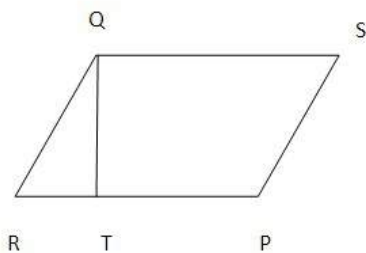
20.



H, I, J, G are the mid points of the sides of the quadrilateral PQRS prove that HIGJ is a parallelogram and HI is half of PR if PQRS is a rectangle.

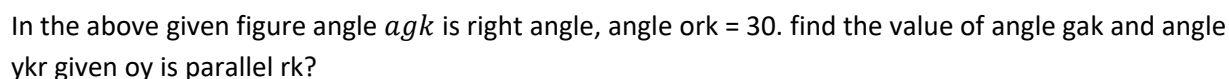
Or

PSQR is a parallelogram where $PR = 12$; $QR = 8$; $QT = 6$. Find the distance between PS and QR. If diagonals PQ and SR are drawn and meet each other at o. what will be the area of triangle ROP?



21. the cost of painting a floor at rupees 12 per sq meter is rupees 672m. if the floor was triangular and its length is seven times the base. Find the length of the hypotenuse.

22.



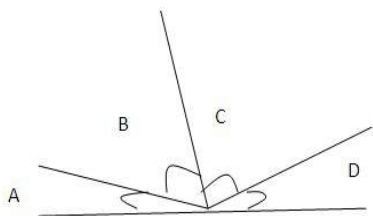
23. Construct a triangle MNH such that angle HMN is 45 degree and MN is 8cm long. Also given is HN-HM = 3cm?

Construct an angle of 60° ; 75° and $22\frac{1}{2}^\circ$.

24. Find the area of a field that is triangular in shape if two sides of the triangle are 14 m and 16 m long and length of the fence around the field is 40 m. find the cost of mowing the field at price of rupees 10 per sq meter.

Answer all the questions according to the choices. Each question carries 6 marks: $4 \times 6 = 24$

Find the angles if the relation between angles is given as follows; -



- 1) angle D is 10 more than angle A
- 2) Ratio of A:C is 4:15
- 3) Ratio of B:D is 6:11

26. show with proof that the angle made at intersection of the lines that bisect the base angles will never be less than a 90 degree in any triangle?

Or

In a triangle TUV right angled at V, G is the mid-point of hypotenuse TU. V is joined to G and produced to a point D such that DG = VG. Point G is joined to point U. Show that

- (i) $\triangle TGV \cong \triangle UGD$ (ii) $\angle DUT$ is a right angle and $VG = \frac{1}{2} TU$

27. Kids toy shop was placing an order for making cardboard boxes for packing two types of toys so two sizes were required. The bigger of dimensions 30 cm \times 25 cm \times 10 cm and the smaller of dimensions 20 cm \times 12 cm \times 5 cm. For accessories 5% of the total surface area is required extra. If the cost of the cardboard is Rs. 3 for 100 cm², find the cost of cardboard required for supplying 200 boxes of each kind.

Or

A plastic hollow cylinder has length of 99 cm. The diameter of inner cross section is 3 cm, the outer diameter being 3.3 cm. Find outer and inner curved surface area and its total surface area.

28. A company takes a survey on number of days its tube lights work:

No. of hours	No. of tube lights
300-400	10
400-500	8
500-600	12
600-700	14

Draw a histogram and how many tube lights work for more than 500 hours and how many work more than 400 hours. Draw a table of "more than" for the given data?

Or

The noise frequency in an experiment is noted for evaluation. The 10 readings every time the same experiment was done are given as:

12, 14, 13, 15, 12, 16, 15, 13, 18, 20, 12

Find the mean, median and mode for the given data.