UNIT TEST – 6

STD : X **TIME : 1 ½ Hrs**
SUBJECT : MATHS **MARKS : 50**

GEOMETRY

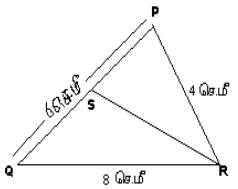
SECTION – I

10 x 1 =10

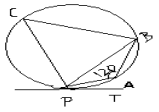
NOTE: (i) Answer all the 10 questions

(ii) Choose the correct answer from the given four alternatives and write the option code and the corresponding answer

1. If a straight line intersects the sides AB and AC of a ΔABC at D and E respectively and is parallel to BC, then $\frac{AE}{AC} =$
   a) $\frac{AD}{DB}$ b) $\frac{AD}{AB}$ c) $\frac{DE}{BC}$ d) $\frac{AD}{EC}$
2. In ΔPQR, RS is the bisector of $\angle R$. $If\ PQ = 6cm, QR = 8\ cm,$ $RP = 4cm$ then P is equal to
   a) 2 cm b) 4cm c) 3 cm d) 6 cm



3. If a vertical stick 12m long casts a shadow 8m long on the grou
   time a tower casts a shadow 40 m long on the ground then the h
   a) 40 cm b) 50m c) 75cm d) 60m
4. The sides of two similar triangles are in the ratio 2 : 3, then their areas are in the ratio
   a) 9 : 4 b) 4 : 9 c) 2 :3 d) 3 :2
5. AB and CD are two chords of a circle which when produced to meet at a point P such that AB = 5 cm, AP = 8 cm and CD = 2cm then PD =
   a) 12 cm b) 5 cm c) 6cm d) 4 cm
6. In the figure, if $\angle PAB = 120°$ then $\angle BPT =$
   a)120∘ b) 80∘ c) 50 ∘ d) 60∘
7. If the tangents PA and PB from an external point P to circle with centre O are inclined to each other at an angle of 40° then $\angle POA =$



   a) 0∘ b) 80∘ c) 50 ∘ d) 60∘
8. Triangles ABC and DEF are similar. If their areas are 100 cm^2 and 49 cm^2 respectively and BC is 8.2cm then EF =
   a) 5.47 cm b) 5.74 cm c) 6.47 cm d) 6.74 cm
9. ΔABC is a right angle triangle where $\angle B = 90°$ and BD ⊥ AC. If BD = 8 cm, AD = 4cm then CD is
   a) 24 cm b) 16cm c) 32 cm d) 8 cm
10. The perimeter of two similar triangles ΔABC and ΔDEF are 36 cm and 24cm respectively. If DE = 10cm, then AB is
    a) 12 cm b) 20cm c) 15 cm d) 18 cm

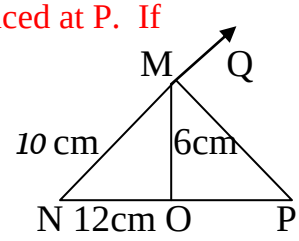
SECTION – II 5 x 2 =10

NOTE: (i) Answer 5 questions

(ii) Question number 17 is compulsory. Select any 4 questions from the first 6 questions

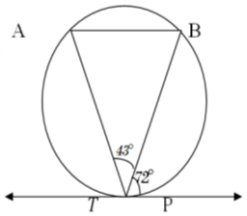
11. In ΔABC, DE ‖ BC and $\frac{AD}{DB} = \frac{2}{3}$. AE = 3.7cm, find EC

12. In a ΔMNO, MP is the external bisector of $\angle M$ meeting NO produced at P. If MN = 10cm, MO = 6cm, NO = 12cm, then find OP.



13. In ΔPQR, AB || QR. If AB is 3 cm, PB is 2cm and PR is 6 cm, then find the length of QR.

14. In the figure TP is a tangent to a circle. A and B are Two points on the circle. If ∠BTP=72° and ∠ATB=43°. Find ∠ABT.



15. Define Tangent – Chord theorem.

16. In ΔABC, the internal bisector AD of ∠A meets the side BC at D. If BD = 2.5 cm, AB = 5 cm & AC = 4.2 cm, the find DC.

17. AB and CD are two chords of a circle which intersect each other internally at P. If CP = 4 cm, AP = 8 cm, PB = 2 cm, then Find PD

(OR)

Let PQ be a tangent to a circle at A and AB be a chord. Let C be a point on the circle such that $\angle BAC = 54°$ and $\angle BAQ = 62°$. Find $\angle ABC$.

SECTION – III 6 x 5 =30

NOTE: (i) Answer 6 questions

(ii) Question number 25 is compulsory. Select any 5 questions from the first 7 questions

18. ABCD is a quadrilateral with AB parallel to CD. A line drawn parallel to AB meets AD at P and BC at Q. Prove that $\frac{AP}{PD} = \frac{BQ}{QC}$

19. If all sides of a parallelogram touch a circle, show that the parallelogram is a rhombus.

20. State and prove the Thales theorem.

21. A boy is designing a diamond shaped kite, as shown in the figure where AE = 16 cm, EC = 81 cm. He wants to use a straight cross bar BD. How long should it be?

22. A point O in the interior of a rectangle ABCD is joined to each of the vertices A,B,C and D. Prove that $OA^2 + OC^2 = OB^2 + OD^2$.

23. A man of height 1.8m is standing near a pyramid. If the shadow of the pyramid is 210m long at that instant, find the height of the pyramid.

24. ABCD is a quadrilateral with AB = AD. If AE and AF are internal bisectors of ∠BAC and ∠DAC respectively, then prove that EF || BD.

25. State and prove Pythagoras theorem.

(OR)

The image of a man of height 1.8m, is of length 1.5m on the film of a camera. If the film is 3cm from the lens of the camera. How far is the man from the camera?