Sample Paper For Half Yearly 2008-09

Class - X
Subject- Maths

Time: 3 hrs.   M.M.80.

General Instructions
1. Attempt all the questions
2. The questions paper consists of 30 questions divided into four sections A, B, C, D. Section A contains 10 questions of 1 marks each ,Section B contains 5 questions of 2 marks each, Section C contains 10 questions of 3 marks each and Section D is of 5 questions of 6 marks each.
3. There is no overall choice. However, internal choices have been provided.
4. In question on constructions , the drawing should be neat and exactly as per the given measurement.

Section A

1. Using Euclid's Division Lemma .Find H.C.F. of 96,144.
2. Find the zeros of the polynomial $4x^2 -9$
3. Find out whether the following pair of Linear equations are consistent or inconsistent:
   $3x+2y = 5$, $2x - 3y = 7$.
4. Find the sum of first 30 natural numbers
5. What value of P will make ST‖ QR
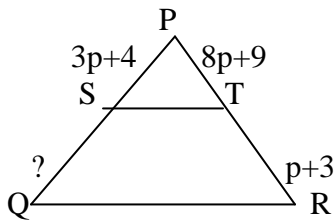
6. Cards each marked with numbers 4,5,6,….,.20 are placed in a box and mixed thoroughly . One card is drawn at random . Find the probability of getting an even prime number.
7. Evaluate $\sec 70^o \sin 20^o$ – $\cos 20^o \csc 70^o$.
8. The length of minute hand of a clock is 14 cm .Find the area swept by the minute hand in 5 minutes.
9. Give the relationship between mean , median and mode.

10. Prove that the length of the tangents drawn from an external point to a circle is equal.

Section B

11. Find the co-ordinates of the point of trisection of the line segment joining (4,-1) and (-2,-3)
12. A lot of 20 bulbs contains 4 defective ones . One bulb is drawn at random from the lot .What is the probability that this bulb is not defective.
13. If the 8th term of an A.P is 31 and the 15th term is 16 more than the 11th term , find the A.P.

<div align="center">OR</div>

If 10th term of an A.P. is 47 and its first term is 2 .Find the sum of first 14 terms.
14. ABC is a right triangle rt angled at C. If p is the length of the perpendicular from C to AB and a,b,c, have thair usual meanings .
   Prove that : $1/a^2 + 1/b^2 = 1/p^2$
15. Evaluate :

$$\frac{\sin 35^o}{\cos 55^o} + \frac{\cos 55^o}{\sin 35^o} - 2 \cos 60^o$$

Section C

16. Prove thet 3- √5 is an irrational number.
17. Prove that

$$\frac{1+ \cos A}{\sin A} + \frac{\sin A}{1+\cos A} = 2 \csc A$$

<div align="center">OR</div>

$$\frac{\sin A+ \cos A}{\sin A-\cos A} + \frac{\sin A -\cos A}{\sin A+\cos A} = 2/\sin^2 A -\cos^2 A$$

18. Find the sum :
   (- 5) + (- 8) + (- 11) + ------------+ (- 230)
   <div align="center">OR</div>
   How many terms of the A.P :9,17,25,---------------- must be taken to get the sum as 636.

19. Construct a triangle similar to given triangle ABC in which AB = 4 cm , BC = 6 cm and ∟ABC = 60° such that each side of the new triangle is 3/4 of given Δ ABC.
20. For what value of 'K' the points A (1,5) , B(K, 1) and C(4, 11) are collinear.
21. In what ratio does the point P(2, - 5) divide the line segment joining A(-3 , 5) and B(4, -9) ?

<div align="center">OR</div>

Find the point on x-axis which is equidistant from (2 , -5) and (-2 , 9).

22. PQRS is a square land of side 28 m .Two semi- circular grass covered portions are to be made on two of its opposite sides . How much area will be left uncovered . Take π = 22/7

23. The speed of a boat in still water is 8 km/hr . It can go 15 km upstream and 22 km downstream in 5 hours . Find the speed of the stream.
24. The incircle of Δ ABC touches the sides BC, CA and AB at D , E and F resp. If AB = AC prove that BD = CD

25. A fraction becomes 9/11 , if 2 is added to both the numerator and the denominator . If 3 is added to both the numerator and denominator it become 5/6. Find the fraction.

Section D

26. Prove that the ratio of areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.
   D, E, F are resp. the mid points of sides AB,BC and CA of Δ ABC . Find the ratio of the areas of Δ DEF and Δ ABC
27. The following frequency distribution gives the monthly consumption of electricity of 68 consumers of a locality . Find the median , mean and mode of the data and compare them.

Monthly consumption (in unit)	No of consumers.
65-85	4
85-105	5
105-125	13
125-145	20
145-165	14
165-185	8
185-205	4

<div align="center">OR</div>

The following data gives the age distribution of cases of a certain disease admitted during a year in a particular hospital .Calculate the mean , median and mode.

Age(in yrs)

	5-14	15-24	25-34	35-44	45-54	55-64.
No of cases	6	11	21	33	14	5

28. A Vessel is a hollow cylinder fitted with a hemispherical bottom of the same base. The depth of the cylinder is 14/3m and the diameter of hemisphere is 3.5 m . Calculate the internal surface area of the vessel .

OR

A toy is in the shape of a right circular cylinder with hemisphere on one end and a cone on the other .The radius and the height of the cylindrical part are 5 cm and 13 cm resp. The radii of the hemispherical and conical parts are the same as that of the cylindrical part. Find the surface area of the toy if the total height of the toy is 30 cm.

29. The angle of elevation of a jet fighter from a point A on the ground is 60^0 .After 15 seconds , the angle of elevation change from 60^0 to 30^0 . If the jet is flying at a speed of 200 m/ sec, find the height at which the jet fighter is flying.

30. Solve the following system of linear equations graphically:

$3x + y - 12 = 0$

$x - 3y + 6 = 0$

Shade the region bounded by these lines and the x-axis.

Prepared by
Ravi Kiran Nagi
P.G.T.(Maths)
K.V.A.D.Dappar