THE INDIAN HIGH SCHOOL, DUBAI

MODEL SUMMATIVE ASSESSMENT – II

Subject : Mathematics

Grade : 9 [Girls]   Time : 3 Hrs

Date   : 08.02. 2015   Max. Marks : 90

General Instructions:

(i)   All questions are compulsory.

(ii) The question paper consists of **31** questions divided into five **sections A, B, C and D**.
      Section-A comprises of **4** questions of **1 mark** each, **Section-B** comprises of **6 questions**
      of **2 marks** each, **Section-C** comprises of **10 questions of 3 marks** each and **Section-D**
      comprises of **11 questions of 4 marks** each.

(iii) There is no overall choice .

(iv) Use of calculator is not permitted.

SECTION-A

Question numbers **1 to 4 carry 1 mark** each.

1.   If (2, 5) is a solution of the equation $2x + 3y = m$, find the value of m.

2.   In the figure, AB and CD are two equal chords of a circle with centre O. OP and OQ are
     perpendiculars on chords AB and CD respectively, if $\angle POQ = 150°$, then find $\angle APQ$.
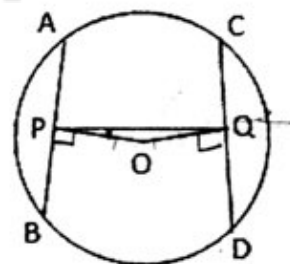
3.   Ten years ago, a father was 10 times as old as his son. Form a linear equation
     expressing their present age.

4.   If the radius of a wire is decreased to one-fourth of its original and its volume
     remains the same, then how many times will the new length becomes its original
     length?

SECTION-B

Question numbers **5 to 10** carry **2 marks** each.

5. In a lucky dip at a school fair, a tub contains 50 prizes at the start of the fair. There are 20 super balls, 10 pens, 10 toy cars and 10 packets of sweets. Sham tries his luck. Find the probability that he
   (i)   wins a super ball   (ii)   does not win a pen
   (iii) wins packets of sweets   (iv)   does not win a toy car.

6. Determine the point on the graph of the linear equation $2x + 5y = 19$, whose ordinate is $1\frac{1}{2}$ times its abscissa.
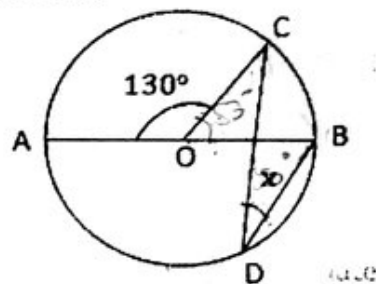
   $y . 1.5 x$

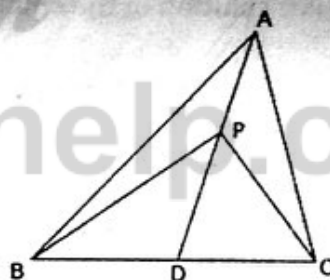7. In the figure, if O is the centre of the circle, then find the value of x.

   $2x + 5x \cdot 1.5x \cdot 19$

   $2x + 7.5x : 19$

   $9.5x : 19$

   $x : 19$

8. If P is any point on the median AD of Δ ABC, then ar(ABP) = ar(ACP). Is it true? Justify your answer.

9. If V is the volume of a cuboid of dimensions a, b, c and s its surface area, then prove that $\frac{1}{V} = \frac{2}{s}\left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right)$.

10. Show that each angle of a rectangle is right angle.

SECTION-C

Question numbers **11 to 20** carry **3 marks** each.

11. Diagonals AC and BD of a quadrilateral ABCD intersect at O in such a way that ar(AOD) = ar(BOC). Prove that ABCD is a trapezium.

12. At which point does the graph of the linear equation $x + y = 5$ meet a line which is parallel to the y – axis, at a distance of 2 units from the origin in the positive direction of x – axis.

13. Construct a $\triangle PQR$ in which $QR = 6$ cm, $\angle Q = 60°$ and $PR - PQ = 2$ cm.

14. The angles of a triangle are $4(x - 1)°$, $3(2x - 2)°$ and $(9x)°$. Find x and hence all angles of triangle.

15. Three metal cubes whose edges measure 3 cm, 4 cm and 5 cm respectively are melted to form a single cube. Find its edge. Also, find the surface area of new cube formed.

16. Show that the line segments joining the mid points of opposite sides of quadrilateral bisect each other.

17. Meenakshi has a piece of canvas whose area is 551 m^2. She uses it to have a conical tent made, with a base radius of 7 m. Assuming that all the stitching margins and wastages incurred while cutting amounts to approximately 1 m^2. Find the volume of the tent that can be made with it.

18. In the given figure, AB is diameter of the circle with centre O and CD||AB. If $\angle CAB = 25°$, then find the measure of $\angle CAD$.
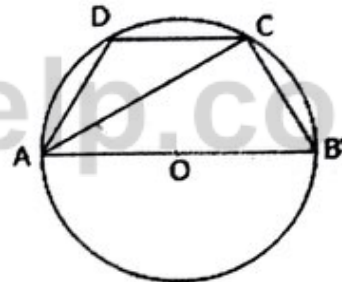
19. In the adjoining figure, PQ is a line parallel to side BC of $\triangle ABC$. If BX||CA and CY||BA meet the line PQ produced at X and Y respectively. Show that ar(ABX) = ar(ACY).

ar $\overline{A \times B} = \frac{1}{2} \frac{ar \times BCQ}{\parallel}$.

ar $AYC = \frac{1}{2} ar(PBCY)$.
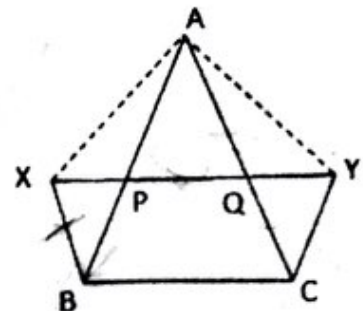
20. Fifty seeds were selected at random from each of 5 bags of seeds and were kept under standardised conditions favourable to germination. After 20 days the number of seeds which had germinated in each collection were counted and recorded as follows:

| Bag	1	2	3	4	5
Number of seeds germinated	40	48	42	39	41

What is the probability of germination of :
(i) 49 seeds in a bag?
(ii) At least 40 seeds in a bag?
(iii) At most 40 seeds in a bag?

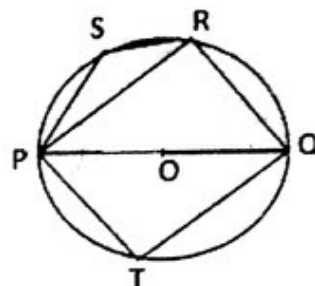### SECTION-D

Question numbers **21 to 31** carry **4 marks** each.

21. Plot the graph of lines x = 1, x= 3, y = -2 and y = 2. What kind of figure is enclosed between the lines. Also find the area of the figure so formed?

22. In the given figure, PQRS is a parallelogram in which PL and RM are bisectors of ∠P and ∠R respectively. Prove that PMRL is parallelogram.
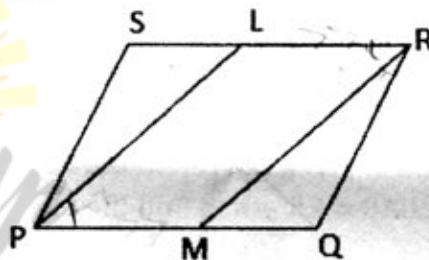
23. A shopkeeper has two types of sweets one laddoo of radius $\frac{3.5}{2}$ cm and other a burfi of size (2 x 2 x 3)cm³. If both are prepared with same material and have same cost per piece, then compare the volume of these and if seller prefer to sell laddoos then which value is depicted?

24. Draw the graph of 12x + 5y = 60. Shade the region bounded by the line in first quadrant and find area of the region.

25. Construct a triangle ABC in which ∠A = 45°, ∠B = 120° and AB + BC + AC = 10.4 cm.

26. O is any point on the diagonal BD of a parallelogram ABCD. Show that **ar(AOB) = ar(OBC)**.

27. A hemispherical bowl of internal radius 9 cm is full of a liquid. This liquid is to be filled into small cylindrical bottles of diameter 3 cm and height 4 cm each. Find the minimum number of bottles required to empty the bowl.

28. In the given figure, PQ is the diameter of the circle. If ∠PQR = 65°, ∠RPS = 25° and ∠QPT = 60°, find the measure of

    (a) ∠QPR   (b) ∠PRS   (c) ∠PSR   (d) ∠PQT

29. A metal pipe is 77 cm long. The inner diameter of a cross-section is 4 cm, the outer diameter being 4.4 cm. Find its :

    (i)   inner curved surface area
    (ii)   Outer curved surface area
    (iii)   Total surface area.

30. A juice seller in a marriage party has a cylindrical vessel with base radius 25 cm and height 40 cm full of juice. He gives the same in small glasses of radius 5 cm and height 10 cm. How many oranges are required for the bigger vessel to fill it completely if to fill one small glass two oranges are required.

31. A recent survey found that the ages of workers in a factory is distributed as follows:

Age (in years)	Number of workers
20 – 29	38
30 – 39	27
40 – 49	86
50 – 59	46
60 and above	3

    If a person is selected at random, find the probability that the person is
    (a) 40 years or more
    (b) Under 40 years
    (c) Having age from 30 to 39 years
    (d) Under 60 but over 39 years.