Section - B

1) If $(3x-4y)^3 = 27x^3 - 64y^3 + axy^2 + bx^2y$, then find the value of $a+b$.

2) Express the following equation as a linear equation in two variables in the standard form and indicate the value of a, b and c: $\frac{\sqrt{3}}{2}y = 3$

3) If the point $(2k-3, k+2)$ lies on the graph of equation $2x + 3y + 15 = 0$, find the value of k.

4) Consider two postulates given below:
   (i) Given any two distinct points R and S, there exists a third point T which is in between R and S.
   (ii) There exist at least three points which are not in the same straight line.

   Now answer the following question:
   a) Do these postulates contain any undefined terms?
   b) Do they follow from Euclid's postulates? Explain

5) The floor of a rectangular hall has a perimeter 150 m. If the cost of painting the four walls at the rate of Rs. 10 per m^2 is Rs. 9000, find the height of the wall.

6) In a data, 14 numbers are arranged in ascending order. If the 9th entry is increased by 5, what will be the corresponding effect on the median?

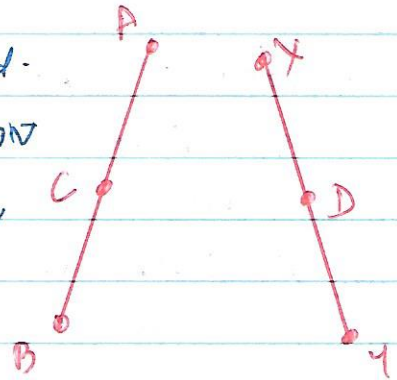7) Give possible expression for the length and breadth of the rectangle, whose area is $6a^2 + a - 12$.

8) Give the geometrical representation of $y = 3$ as an equation:
   (i) in one variable
   (ii) in two variable.

9) If the point $(3, 4)$ lies on a graph of the equation $3y = ax + 7$, find the value of a.

10) In fig. $AC = XD$, C is the mid-point of AB and D is the mid-point of XY. Using an Euclid's axiom, show that $AB = XY$.

11) A cuboidal water tank is 4 m long, 3 m wide and 2 m deep. How many litres of water can it hold?

12) It is given that the mean of five numbers is 27. If one of the numbers is excluded, the mean gets reduced by 2, find the excluded number.

13) Simplify : $\dfrac{454 \times 441 - 454 \times 21}{(877)^2 - (423)^2}$

14) Find the value of k, if $x = 2$, $y = 1$ is a solution of the equation $2x + 3y = k$.

15) Solve the equation $2x + 1 = x - 3$ and represent the solution(s) on (i) Number line (ii) Cartesian plane.

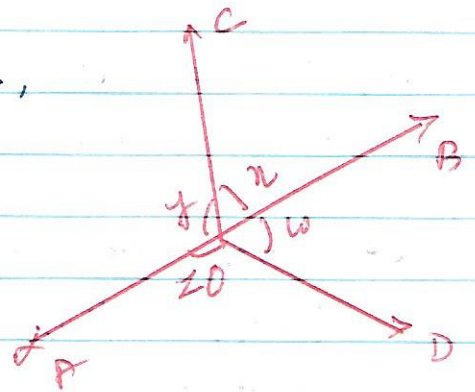16) Does the Euclid's fifth postulate imply the existence of parallel lines? Explain.

17) Find the total surface area of a cone whose radius is $\frac{r}{2}$ and slant height is $2l$.

18) The points scored by a basketball team in a series of matches are as follows : 17, 2, 7, 27, 5, 14, 18, 10. Find the median.
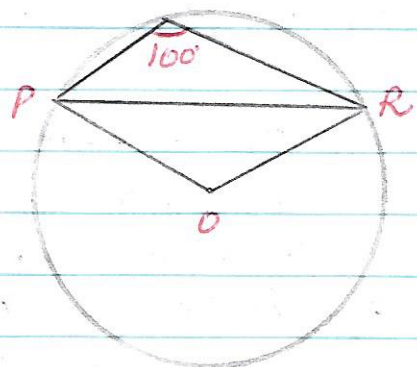
19) (a) $(125)^{-1/3}$ (b) $2^{\frac{1}{4}} \times 8^{\frac{1}{4}}$

20) In a conversation, Anand said his savings of the month is the same as that of Raju, Pankaj replied he also save as much his monthly savings of Anand and Pankaj? Write the Euclids axiom for this situation.

21) In the given fig, if $x+y = w+z$, then prove that AOB is line.

22) In the fig $\angle PQR = 100°$ where P, Q and R are points on the circle with centre O. Find $\angle OPR$.

23) If a wooden box of dimension $8m \times 7m \times 6m$ is to carry boxes of dimension $8 cm \times 7 cm \times 6 cm$, the find the maximum number of boxes that can be carried in the wooden box.

24) Eleven bags of wheat flour, each marked 5-kg actually contained the following weights of floor (in kg)

4·97, 5·05, 5·08, 5·03, 5·00, 5·06, 5·08, 4·98, 5·04, 5·07, 5·00.

Find the probability that any one of these bags chosen at random contain
a) More than 5 kg
b) Equal to 5 kg.

25) Find the mean mode of given data
2, 3, 4, 5, 0, 1, 3, 3, 4, 3.

26) Find the area of a triangle whose sides are 11m, 60 m and 61 m.

27) Write the shape of the quadrilateral formed by joining $(1,1)$, $(6,1)$, $(4,5)$ and $(3,5)$ on a graph paper.

28) If $p+q = 12$ and $pq = 27$, find the value of $p^3 + q^3$?

29) An isosceles right triangle has area $200 cm^2$. Find the length of its hypotenuse.
Write the answer of each:

30) (i) What is the name of each part of the plane formed by two intersecting axes on the cartesian plan?
(ii) Write the name of point where these two line intersect.

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