ASSIGNMENT (NCJPS/GSA/X/MATHS/2011-12/04)

Chapter: - Co-ordinate Geometry, Probability, Menstruation, Trigonometry

1. If the point C (-1, 2) divides the line segment AB in the ratio 3:4, where the coordinates of A are (2,5), find the coordinates of B.
2. Two vertices of a triangle are (1, 3) and (4,-5) and its centroid is (7,2). Find the third vertex.
3. Find the point on the y-axis which is equidistant from (-5,-2) and (3,2).
4. Prove that the points P (a, b + c), Q (b, c + a) and R(c, a + b) are collinear.
5. If the mid-point of the line joining (3,4) and (k,7) is (x,y) and 2x + 2y + 1 = 0. Find the value of K.
6. Find the coordinates of the mid-points of the circle passing through the points (0,0), (-2,1) and (-3,2). Also find the radius.
7. Two unbiased dice are thrown. What is the probability that the total score is more than 5?
8. Find the probability that a number selected at random from the numbers 1, 2, 3, …35 is a (i) prime number (ii) multiple of 7 (iii) multiple of 3 or 5.
9. A lot consists of 48 mobiles phones of which 42 are good, 3 have only minor defects and 3 have major defects. Kirti will buy a phone if it is good but the trader will only buy a mobile if it has no major defect. One phone is selected at random from the lot. W hat is the probability that it is (i) Acceptable to Kirti ? (ii) Acceptable to the trader ?
10. If a number x is chosen from the numbers 1, 2, 3 and a number y is selected from the numbers 1,4,9. Find the probability that xy = 10.
11. Find the number of rounds that a wheel of diameter 7 /11 m will make in going 4 km.
12. OPQR is a rhombus whose three vertices P,R and R lie on a circle with centre O. If the area of the rhombus is 32 √3 cm^2, find the area of the circle.
13. Find the area of the largest triangle that can be inscribed in a semicircle of radius 7 cm.
14. From a copper plate, which is a square of side 12.5 cm, a circular disc of diameter 7 cm is cut off. Find the weight of the remaining part, if 1 sq.cm of plate weight 0.8 gm.
15. The diameter of a copper sphere is 6 cm. The sphere is melted and is drawn into a long wire of uniform circular cross section. If the length of the wire is 36 cm, find its radius.
16. A bucket is in the form of a frustum of a cone holds 28.49 litters of milk. The radii of the top and bottom are 28 cm and 21 cm respectively. Find the height of the bucket.
17. A cylindrical pipe has inner diameter of7 cm and water flows through it at 192.5 litres per minute. Find the rate of flow in km/hr.

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18. A semicircular sheet of metal of diameter 28 cm is bent into an open conical cup. Find the depth and capacity of the cup.

19. Areas of three adjacent faces of a cuboids are 24 cm^2,8 cm^2 and 12 cm^2 respectively. Find the volume of the cuboid.

20. A solid is hemispherical at the bottom and conical above. If the surface areas of two parts are equal, then find the ratio of the radius and the height of the conical part.

21. From the top of the building 15m high, the angle of elevation of the top of the tower is found to be 30^0. From the bottom of the same building, the angle of elevation of the top of the tower is found to be 45^0. Determine the height of the tower and distance between the tower and the building.

22. From the top of a 7 m high building, the angle of elevation of the top of the tower is 60^0 and the angle of depression of the foot of the tower is 30^0. Find the height of the tower.

23. The angle of elevation of an airplane from a point on the ground is 45^0. After a flight of 15 seconds, the elevation changes to 30^0. If the airplane is flying at a height of 3000 m, find the speed of the airplane.

24. A man rowing a boat away from a light house 150 m high takes two minutes to change the angle of elevation of the top of light house from 45^0 to 30^0. Find the speed of the boat.

----------**Best of Luck**----------