TEST – 1 (Mathematics)

1. Plot $2x + 9 = y$ on Cartesian plane. 2
2. Find median & mode of following observations
   12,35,2,45,56,29,29,50 2
3. What is the probability of getting a no. divisible by 3 & 2 in single throw of a dice?
   2
4. Calculate the volume of a hemisphere of diameter 7cm. 2
5. Show that a median divides triangle into two Δs of equal area. 2

6. Find two solutions for each of following equations: 3
   i. $4y – 8x = 50$
   ii. $3/2\ x – 7 = 10y$
   iii. $2x = 6$
7. Mean of 20 observations was found to be 30. If 45 is also included as one of the observation, obtain the new mean. 3
8. Calculate the total and the lateral surface area of a cuboid of dimensions 100cm x 20cm x 4cm. 3
9. Two arbitrary points A and B taken over the circumference of circle subtend an angle of 220^o at the center of circle O. what would be the angle subtended by them at any point C on circumferernce of same circle. 3
10. Construct a triangle PQR in which QR = 6cm and PR – PQ = 2cm. 3

11. Goals scored by two teams, Team A & Team B in 30 matches were

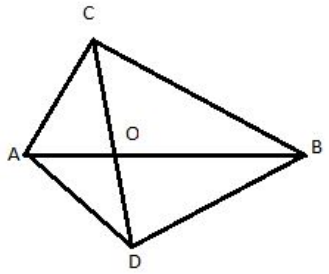
No of Matches	Team A	Team B
1 – 6	2	5
7 – 12	1	6
13 – 18	8	2
19 – 24	9	10
25 – 30	4	5

Represent both teams on same graph via frequency polygon. 5

12. If V volume of iron was melted to form 5
    a. a sphere, of radius ‘r’
    b. a cube, of sidelength ‘r’
    c. a cylinder, of height = base radius = r
    Calculate the total surface area in terms of ‘V’ for all above cases. Also estimate which among them posses least TSA.
    “OR”
    The volume of a right circular cone is 9856 cm^3. If the base diameter is 28cm, calculate its
    a. height
    b. Slant height
    c. Curved surface area
    d. Total surface area

13. If circles drawn taking two sides of a triangle as diameters. Prove that the point of intersection of the two circles lies on the third side. 5
    “OR”
    Prove that quadrilateral formed by the internal angle bisectors of any quadrilateral is cyclic.

14. In the adjacent fig ABC & ADC are two triangles on same base AB. If line CD



    is bisected by AB at O, show that ar(ABC)=ar(ADC). 5

15. A river 3m deep & 40m wide is flowing at rate of 2km per hr. How much water will fall into the sea in a 15 minutes. 5
    “OR”
    Twenty seven solid iron spheres, each of radius r and surface area S re melted to form a sphere with surface area S’. find the 5
    i. radius r’ of the new sphere.
    ii. Ratio of S and S’