Assignment 10th DOI 12 Feb 2016 Date of Submission –Maths- 15 Feb; Sc 17 Feb; SS 18 Feb

10 Mth Circles (Q 1-10 : 1 mark each; 11-14: 2 marks each; 15-19: 3 marks each;)

Write 'True' or 'False' and justify your answer in each of the following :

1. If a chord AB subtends an angle of 60° at the centre of a circle, then angle between the tangents at A and B is also 60°.
2. The length of tangent from an external point on a circle is always greater than the radius of the circle.
3. The length of tangent from an external point P on a circle with centre O is always less than OP.
4. The angle between two tangents to a circle may be 0°.
5. If angle between two tangents drawn from a point P to a circle of radius a and centre O is 90°, then OP = a $\sqrt{2}$.
6. If angle between two tangents drawn from a point P to a circle of radius a and centre O is 60°, then OP = a $\sqrt{3}$.
7. The tangent to the circumcircle of an isosceles triangle ABC at A, in which AB = AC, is parallel to BC.
8. If a number of circles touch a given line segment PQ at a point A, then their centres lie on the perpendicular bisector of PQ.
9. If a number of circles pass through the end points P and Q of a line segment PQ, then their centres lie on the perpendicular bisector of PQ.
10. AB is a diameter of a circle and AC is its chord such that $\angle BAC = 30°$. If the tangent at C intersects AB extended at D, then BC = BD.

11. Out of the two concentric circles, the radius of the outer circle is 5 cm and the chord AC of length 8 cm is a tangent to the inner circle. Find the radius of the inner circle.
12. Two tangents PQ and PR are drawn from an external point to a circle with centre O. Prove that QORP is a cyclic quadrilateral.
13. If from an external point B of a circle with centre O, two tangents BC and BD are drawn such that $\angle DBC = 120°$, prove that BC + BD = BO, i.e., BO = 2BC.
14. Prove that a diameter AB of a circle bisects all those chords which are parallel to the tangent at the point A.

15. If a circle touches the side BC of a triangle ABC at P and extended sides AB and AC at Q and R, respectively, prove that AQ = ½ (BC + CA + AB)
16. If a hexagon ABCDEF circumscribe a circle, prove that AB + CD + EF = BC + DE + FA.
17. Let s denote the semi-perimeter of a triangle ABC in which BC = a, CA = b, AB = c. If a circle touches the sides BC, CA, AB at D, E, F, respectively, prove that BD = s – b.
18. If an isosceles triangle ABC, in which AB = AC = 6 cm, is inscribed in a circle of radius 9 cm, find the area of the triangle.
19. A is a point at a distance 13 cm from the centre O of a circle of radius 5 cm. AP and AQ are the tangents to the circle at P and Q. If a tangent BC is drawn at a point R lying on the minor arc PQ to intersect AP at B and AQ at C, find the perimeter of the ΔABC.

10 Mth Surface Areas And Volumes (Q 1-6 : 1 mark each; 7-14 : 2 marks each; 15-22 : 5 marks each;)

1. Write the formulae involving the frustum of a cone:

i. Volume of the frustum of the cone = ii. Curved surface area of the frustum of the cone =

iii. Total surface area of the frustum of the solid cone =

2. Write the formulae involving the Solid hemisphere: If r is the radius of a hemisphere, then

i. curved surface area = ii. total surface area = iii. volume = iv. Volume of a spherical shell =

Write 'True' or 'False' and justify your answer.

3. Two identical solid cubes of side a are joined end to end. Then the total surface area of the resulting cuboid is $12a^2$.
4. Two identical solid hemispheres of equal base radius r cm are stuck together along their bases. The total surface area of the combination is $6 \pi r^2$.
5. A solid cylinder of radius r and height h is placed over other cylinder of same height and radius. The total surface area of the shape so formed is $4 \pi r h + 4 \pi r^2$.
6. A solid ball is exactly fitted inside the cubical box of side a. The volume of the ball is $4/3 \pi a^3$

7. A cone of maximum size is carved out from a cube of edge 14 cm. Find the surface area of the cone and of the remaining solid left out after the cone carved out.
8. A solid metallic sphere of radius 10.5 cm is melted and recast into a number of smaller cones, each of radius 3.5 cm and height 3 cm. Find the number of cones so formed.
9. A canal is 300 cm wide and 120 cm deep. The water in the canal is flowing with a speed of 20 km/h. How much area will it irrigate in 20 minutes if 8 cm of standing water is desired?
10. Three cubes of a metal whose edges are in the ratio 3:4:5 are melted and converted into a single cube whose diagonal is 12 $\sqrt{3}$ cm. Find the edges of the three cubes.
11. Marbles of diameter 1.4 cm are dropped into a cylindrical beaker of diameter 7 cm containing some water. Find the number of marbles that should be dropped into the beaker so that the water level rises by 5.6 cm.
12. How many spherical lead shots each of diameter 4.2 cm can be obtained from a solid rectangular lead piece with dimensions 66 cm, 42 cm and 21 cm.
13. How many spherical lead shots of diameter 4 cm can be made out of a solid cube of lead whose edge measures 44 cm.
14. Find the number of metallic circular disc with 1.5 cm base diameter and of height 0.2 cm to be melted to form a right circular cylinder of height 10 cm and diameter 4.5 cm.

15. A bucket is in the form of a frustum of a cone of height 30 cm with radii of its lower and upper ends as 10 cm and 20 cm, respectively. Find the capacity and surface area of the bucket. Also, find the cost of milk which can completely fill the container, at the rate of Rs 25 per litre (use $\pi = 3.14$).
16. A solid toy is in the form of a hemisphere surmounted by a right circular cone. The height of the cone is 4 cm and the diameter of the base is 8 cm.

17. A cylindrical bucket of height 32 cm and base radius 18 cm is filled with sand. This bucket is emptied on the ground and a conical heap of sand is formed. If the height of the conical heap is 24 cm, find the radius and slant height of the heap.
18. Water is flowing at the rate of 15 km/h through a pipe of diameter 14 cm into a cuboidal pond which is 50 m long and 44 m wide. In what time will the level of water in pond rise by 21 cm?
19. A solid iron cuboidal block of dimensions 4.4 m × 2.6 m × 1m is recast into a hollow cylindrical pipe of internal radius 30 cm and thickness 5 cm. Find the length of the pipe.
20. 500 persons are taking a dip into a cuboidal pond which is 80 m long and 50 m broad. What is the rise of water level in the pond, if the average displacement of the water by a person is $0.04m^3$?
21. 16 glass spheres each of radius 2 cm are packed into a cuboidal box of internal dimensions 16 cm × 8 cm × 8 cm and then the box is filled with water. Find the volume of water filled in the box.
22. A pen stand made of wood is in the shape of a cuboid with four conical depressions and a cubical depression to hold the pens and pins, respectively. The dimension of the cuboid are 10 cm, 5 cm and 4 cm. The radius of each of the conical depressions is 0.5 cm and the depth is 2.1 cm. The edge of the cubical depression is 3 cm. Find the volume of the wood in the entire stand.

For more practice refer to NCERT Examplar 10 Mth

10 Sc Management of Natural Resources (Q 1-20 : 1 mark each; 21-30: 2 marks each; 31-38 : 3 marks each;)

1. Which is the easiest method to detect water pollution? 2. Name a bacteria found in human intestine.
3. Enlist 4 items forests give us to meet our daily needs. 4. Why are forests called "biodiversity hot spots"?
5. Name 4 substances that can be recycled. 6. What do you mean by the term sustainable development? 7. How does mining lead to pollution? 8. Hydroelectric power is also an indirect form of solar energy. How?
9. How did people in ancient India manage water resources? 10. What will happen if loss of biodiversity occurs?
11. Where was Chipko Movement started? 12. What will be the result of presence of excess amount of CO_2 in the environment. 13. What are two major benefits of dams? 14. List any two systems of water harvesting.
15. Prepare a list of five items that you use daily in the school. Identify from the list such items that can be recycled.
16. List two advantages associated with water harvesting at the community level.
17. What measures would you take to conserve electricity in your house?
18. Although coal and petroleum are produced by degradation of bio - mass, yet we need to conserve them. Why?
19. Suggest a few measures for controlling carbon dioxide levels in the atmosphere.
20. What do you understand by Hydroelectric power?

21. Mining leads to pollution. Explain with example. 22. "Coal and petroleum are converted forms of solar energy". Explain. 23. Hydroelectric power is also an indirect form of solar energy? Justify
24. How did the people in ancient India manage water resources? Explain with the help of two examples.
25. What is watershed management? Write its aim and benefits? 26. Write two advantages of classifying energy sources as renewable and non renewable. 27. What are fossil fuels? Give two examples of fossil fuels.
28. Write the ecological functions of forests. 29. How do the forests get depleted? What are its consequences?
30. Why are Arabari forests of Bengal known to be good example of conserved forests?

31. In a village in Karnataka, people started cultivating crops all around a lake which was always filled with water. They added fertilisers to their field in order to enhance the yield. Soon they discovered that the waterbody was completely covered with green floating plants and fishes started dying in large numbers. Analyse the situation and give reasons for excessive growth of plants and death of fish in the lake.
32. Why is replenishment of forests necessary? 33. Suggest a few useful ways of utilising waste water.
34. Briefly describe Ganga action plan. 35 . What is a dam? Write two main advantages and two ill effects of constructing a big dam 36. In the context of conservation of natural resources, explain the terms reduce, recycle and reuse. From among the materials that we use in daily life, identify two materials for each category.
37. Prepare a list of five activities that you perform daily in which natural resources can be conserved or energy utilisation can be minimised. 38. Is water conservation necessary? Give reasons.

10 SS Nationalist movement in Indo China (Q1-4 : 1 mark each; Q5-10 : 2 marks each)

1. What is IndoChina? 2. What was Syncretic tradition? 3. What is the scholars revolt of 1868?
4. What is NLF? 5. What was the immediate outcome of the Geneva Peace negotiations on Vietnam?
6. Which city of Vietnam was rebuilt by the French? 7. What was the main objective of French government in developing Vietnam? 8. What were Paul Bernard views to develop Vietnam as French colony? 9. What was the role of religious groups in the development of anti colonial feeling in Vietnam? 10. What were the two connected themes of the book " The history of the loss of Vietnam"?

Symposium - SS Globalisation and Indian Economy (As given in previous assignment 04 Feb 2016).

2. Quiz- http://www.learnmyway.in 10(02) DOI Feb 12 2016.Q.Sc. Management of Natural Resources
3. Electronic test - http://www.learnmyway.in 10(02M) DOI Feb 12 2016.ET.Sc. Management of Natural Resources.
4. Quiz- http://www.learnmyway.in 10(02) DOI Feb 12 2016.Q.SS. Nationalist movement in Indo China
5. Electronic test - http://www.learnmyway.in 10(02M) DOI Feb 12 2016.ET.SS. Nationalist movement in Indo China