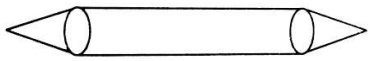
1. The shape of a gilli, in the gilli-danda game (see figure), is a combination of



(A) two cylinders (B) a cone and a cylinder

(C) two cones and a cylinder (D) two cylinders and a cone

2. A hollow cube of internal edge 22cm is filled with spherical marbles of diameter 0.5cm and it is assumed that $\frac{1}{8}$ space of the cube remains unfilled. Then the number of marbles that the cube can accomodate is

(A) 142296 (B) 142396 (C) 142496 (D) 142596

3. A solid piece of iron in the form of a cuboid of dimensions $49\text{cm}\times 33\text{cm}\times 24\text{cm}$, is moulded to form a solid sphere. The radius of the sphere is

(A) 21cm (B) 23cm (C) 25cm (D) 19cm

4. A mason constructs a wall of dimensions $270\text{cm}\times 300\text{cm}\times 350\text{cm}$ with the bricks each of size $22.5\text{cm}\times 11.25\text{cm}\times 8.75\text{cm}$ and it is assumed that $\frac{1}{8}$ space is covered by the mortar. Then the number of bricks used to construct the wall is

(A) 11100 (B) 11200 (C) 11000 (D) 11300

5. Twelve solid spheres of the same size are made by melting a solid metallic cylinder of base diameter 2cm and height 16cm. The diameter of each sphere is

(A) 4cm (B) 3cm (C) 2cm (D) 6cm

6. The radii of the top and bottom of a bucket of slant height 45cm are 28cm and 7cm, respectively. The curved surface area of the bucket is

(A) 4950cm^2 (B) 4951cm^2 (C) 4952cm^2 (D) 4953cm^2

7. A medicine-capsule is in the shape of a cylinder of diameter 0.5cm with two hemispheres stuck to each of its ends. The length of entire capsule is 2cm. The capacity of the capsule is

(A) 0.36cm^3 (B) 0.35cm^3 (C) 0.34cm^3 (D) 0.33cm^3

8. If two solid hemispheres of same base radius r are joined together along their bases, then curved surface area of this new solid is

(A) $4\pi r^2$ (B) $6\pi r^2$ (C) $3\pi r^2$ (D) $8\pi r^2$

9. The diameter of a sphere is 6cm. It is melted and drawn into a wire of diameter 2mm. The length of the wire is

(a) 12m (b) 18m (c) 36m (d) 66m

10. A sphere of radius 6cm is dropped into a cylindrical vessel partly filled with water. The radius of the vessel is 8cm. If the sphere is submerged completely, then the surface of the water rises by

(a) 4.5cm (b) 3cm (c) 4cm (d) 2cm

11. The maximum volume of a cone that can be carved out of a solid hemisphere of radius r is

(a) $3\pi r^2$ (b) $\frac{\pi r^3}{3}$ (c) $\frac{\pi r^2}{3}$ (d) $3\pi r^3$

12. The curved surface area of a right circular cone of height 15cm and base diameter $16\ \text{cm}$ is

(a) 607cm^2 (b) 6871cm^2 (c) 12071cm^2 (d) 136Tlcm c

13. The volume of the greatest sphere that can be cut off from a cylindrical log of wood of base radius 1cm and height 5cm is

(a) $\frac{4}{3}\pi$ (b) $\frac{10}{3}\pi$ (c) 5π (d) $\frac{20}{3}\pi$

14. A solid metallic spherical ball of diameter $6\ \text{cm}$ is melted and recast into a cone with diameter of the base as 12cm. The height of the cone is

(a) 2cm (b) 3cm (c) 4cm (d) 6cm

15. A solid metallic spherical ball of diameter $6\ \text{cm}$ is melted and recast into a cone with diameter of the base as 12cm. The height of the cone is

(a) 2cm (b) 3cm (c) 4cm (d) 6cm

16. A solid consists of a circular cylinder with an exact fitting right circular cone placed at the top. The height of the cone is h. If the total volume of the solid is 3 times the volume of the cone, then the height of the circular cylinder is

(a) 2 h (b) $\frac{2h}{3}$ (c) $\frac{3h}{2}$ (d) $4\mathbf{h}$

17. The radii of the ends of a bucket 16cm high are 20cm and 8cm. The curved surface area of bucket is

(a) $1760\,cm^2$ (b) $2240\,cm^2$ (c) $880\,cm^2$ (d) $3120\,cm^2$

18. A spherical ball of radius r is melted to make 8 new identical balls each of radius r. Then r:rl =

(a) 2: 1 (b) 1: 2 (c) 4: 1 (d) 1: 4

19. The material of a cone is converted into the shape of a cylinder of equal radius. If height of the cylinder is $5cm$, then height of the cone is

(a) $10cm$ (b) $15cm$ (c) $18cm$ (d) $24cm$

20. A metallic sphere of radius $10.5cm$ is melted and then recast into small cones, each of radius $3.5cm$ and height $3cm$. The number of such cones is

(a) 63 (b) 126 (c) 21 (d) 130