BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

POST MID TERM EXAMINATION (2026)

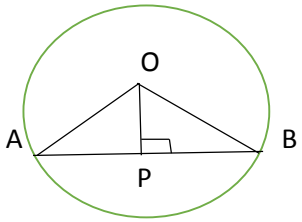
MATHEMATICS
MARKING SCHEME

Class : IX — Duration: 1 Hr
Date : 10-01-2026 — Max. Marks: 25

I. MCQ (1 mark each) — 5 x 1 = 5

1. 45^0 (C)
2. 60^0 (C)
3. $\frac{2}{3}\pi R^3$ (B)
4. 2464 (C)
5. None of these (D)

6. Prove that the perpendicular from the centre of a circle to a chord bisects the chord.



Given : O is centre of circle
OP ⊥ AB

To Prove : AP = PB

Proof : In Δ APO and Δ BPO

OP = OP	common	½
∠APO = ∠BPO	Each 90^0	½
OP = OB	Radii of the same circle	
Δ APO ≅ Δ BPO	By RHS Rule	½
AP = PB	CPCT	½

7. ∠A + ∠B + ∠C = 180^0 Angle Sum property ½
∠A + 69 + 31 = 180 ½
∠A = 80^0 ½
∠BAC = ∠BDC Angles in same segment.
∠BDC = 80^0 ½

8. I) CSA of Cone = π r l
308 x 7 = 22 x r x 14 ½
$\frac{308 \times 7}{22 \times 14}$ = r
14 cm = r ½
ii) TSA of Cone = π r (l + r)
= $\frac{22}{7}$ x 14 (14 + 14) ½
= 528 cm^2 ½

9. Surface Area of Balloon (r= 7) = $4\pi r^2$
= 4π 7 x 7 ½
Surface Area of Balloon (r= 14) = 4π 14 x 14 ½
Ratio of their surface area = $\frac{4\pi\ 7 \times 7}{4\pi\ 14 \times 14}$ ½

= 1 : 4

10 AB = OA = OB = radius of the circle ½

ΔOAB has all equal sides, and thus, it is an equilateral triangle. ½

∠AOC = 60° ½

∠ACB = ½ ∠AOB ½

since ACBD is a cyclic quadrilateral,

∠ADB +∠ACB = 180° ½

∠ADB = 180°-30° = 150° ½

10. Surface area of the sphere = $4\pi r^2$ ½

$4\pi r^2 = 154\ cm^2$ ½

$r^2 = \frac{154 \times 7}{22 \times 4}$ ½

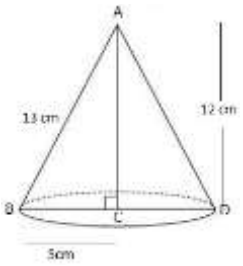
$r = \frac{7}{2}$ cm ½

Volume of Sphere $= \frac{4}{3}\ \pi\ r^3$

$= \frac{4}{3} \times \frac{22}{7} \times \frac{7}{2} \times \frac{7 \times 7}{2 \times 2}$ ½

$= 179\frac{2}{3}\ cm^3$ ½

11. Height (h)= 12 cm Radius (r) = 5 cm, and Slant height (l) = 13 cm ½



½

Volume of cone, $V = (\frac{1}{3})\ \pi r^2 h$ ½

$V = (\frac{1}{3}) \times \pi \times 5^2 \times 12$ ½

$V = 100 \times 3.14\ cm^3$ ½

Volume of the cone so formed is 314 cm^3. ½

12. Volume of a Shot- putt (Sphere) $= \frac{4}{3}\pi\ r^3$ ½

$= \frac{4 \times 22}{3 \times 7} \times 4.9 \times 4.9 \times 4.9$ ½

$= 493\ cm^3$ ½

Mass of the Shot- putt = 7.8 x 493 ½

= 3845.4 gm 1

= 3.845 Kg

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