CARMEL CONVENT SCHOOL, CHANDIGARH
SECOND UNIT TEST (SESSION 2025-2026)
MATHEMATICS

CLASS- IX **MAXIMUM MARKS: 40**
DATE: 10.12.2025 **TIME: 1HR 30MIN**

General Instructions:
1. This Question Paper has 5 Sections A-E
2. Section A has 10 MCQs carrying 1 mark each
3. Section B has 3 questions carrying 02 marks each.
4. Section C has 2 questions carrying 03 marks each.
5. Section D has 2 question carrying 5 marks each
6. Section E has 2 questions carrying 4 marks each
7. All Questions are compulsory

SECTION – A

Q1. If a straight line falling on two straight lines makes the interior angles on the same side of it, whose sum is 120^0 then the two straight lines if produced indefinitely do not meet on the side where sum is
(a) less than 120^0 (b) greater than 120^0 (c) is equal to 120^0 (d) greater than 180^0

Q2. The opposite angles of a parallelogram are $(3x - 2)°$ and $(50 - x)°$ the measure of these angles is _____.
(a) 140°, 140° (b) 20°, 160° (c) 37°, 143° (d) 37°, 37°

Q3. A conical tent is 15 m high and the radius of its base is 20 m. The cost of the canvas required to make the tent at the rate of ₹7 per m^2 is
(a) ₹10000 (b) ₹12000 (c) ₹11000 (d) ₹9000

Q4. The angles of quadrilateral are in the ratio 3 : 5 : 9 : 13. Find the largest angle of the quadrilateral.
(a) 60° (b) 108° (c) 156° (d) 36°

Q5. The radius and height of a cone are in the ratio 3:4. If its volume is 301.44 cm cube, what is its radius? (Take pie=3.14).
(a) 2 cm (b) 3 cm (c) 4 cm (d) 6 cm

Q6. If an angle of a parallelogram is two-third of its adjacent angle, the smallest angle of the parallelogram is:
(a) 81° (b) 54° (c) 108° (d) 72°

Q7. AD is median of triangle ABC and E is the mid point of AD.. If BE is joined and produced to meet AC at F and a line is drawn through D such that DG is parallel to BF
then AF=

a) $\frac{1}{2}$ AC b) $\frac{1}{3}$ AC c) $\frac{2}{3}$ AC d) $\frac{3}{4}$ AC

Q8. In triangle ABC, AB=AC , if angle C = 75^0 find angle A
(a) 45^o (b) 30^o (c) 75^o (d) 60^o

Choose the correct option:
(a) Both A and R are true, and R is the correct explanation of A.
(b) Both A and R are true, but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

Q9Assertion (A): Total curved surface area of the hemispherical bowl with r = 7 cm is 460cm^2
Reason (R): Total ~~curved~~ surface area of hemisphere is ½ of the curved surface area of sphere + area of base d)

Q10 Assertion (A): If the volumes of two spheres are in the ratio 27:8 , then their surface areas are in the ratio 9:4 c)
Reason (R): volume of sphere is $4\pi r^2$ and surface area $=\frac{4}{3}\pi r^3$

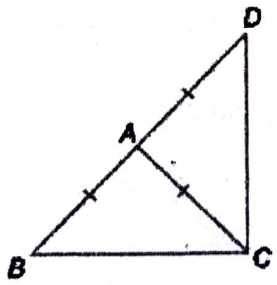
SECTION – B

Q11. Point C lies between two points A and B such that AC=BC, then prove that AC=$\frac{1}{2}$ AB

Q12. Find the amount of water displaced by hemispherical ball of diameter 0.21 m

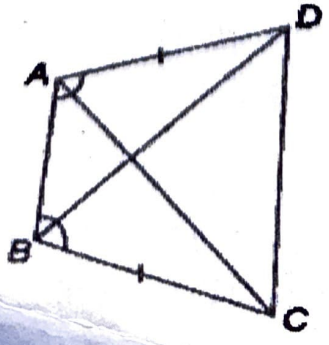
Q13 ΔABC is an isosceles triangle in which AB = AC. Side BA is produced to D such that AD = AB (see figure). Show that ∠BCD is a right angle.

$\frac{1}{8}$ 8^2



SECTION – C

Q14. ABCD is a quadrilateral in which AD = BC and ∠ DAB = ∠ CBA
(see figure). Prove that i)ΔABD ≅ ΔBAC (ii) BD = AC (iii) ∠ABD = ∠ BAC



Q15. A solid metallic sphere of radius 7 cm is melted and recast into smaller spheres of radius 3.5 cm each. Find the number of such smaller spheres formed.

SECTION – D

Q16. State and prove Mid-point theorem. ABCD is a rhombus and P, Q, R and S are the mid-points of the sides AB, BC, CD and DA, respectively. Show that the quadrilateral PQRS is a rectangle.

Q17. The front compound of a house has a structure for décoration with wooden sphere with radius 7 cm on top of a cone whose radius is 12 cm and height as 5cm. Find the cost of painting if sphere is to be painted with silver color at 25 paisa per cm^2. Whereas conical part is covered with black paint at Rs.5.60 per cm^2. There are 10 such structures. Find total cost of painting the whole structure.

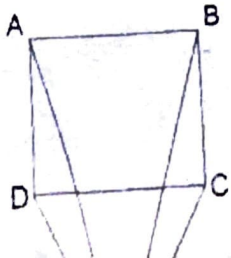
SECTION – E

Q18. In a Housing Society Complex a Central Park has been developed .The shape of Central Park is as shown in the figure. Figure has a square ABCD and CDE is an equilateral triangle on side CD of the square. AEBA is a walking track in the form of triangle based on the above information and given figure answer the following questions:

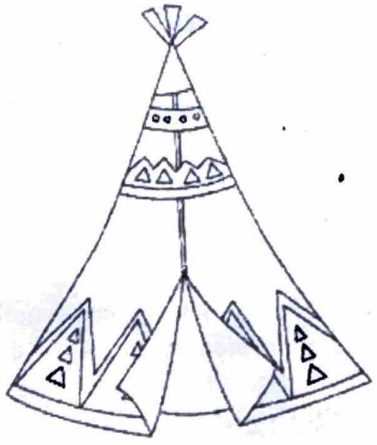
i) What is the measure of angle BCE?

(ii) Prove that $\Delta ADE \cong \Delta BCE$.

(iii) State the type of ΔAEB. Give reason.



Q19. Amitoj is planning a camp in which Conical tent is 9 m high and the radius of its base is 12m



i. What is the cost of the canvas required to make it, if cost of canvas is Rs 10/m²?
ii. How many persons can be accommodated in the tent, if each person requires 2 m² on the ground
iii. How many persons can be accommodated in the tent if 15 m³ of space is required?