

Topic : Solution of Triangle

Type of Questions

M.M., Min.

Comprehension (no negative marking) Q.1 to Q.3

(3 marks, 3 min.)

[9, 9]

Single choice Objective (no negative marking) Q.4,5,6

(3 marks, 3 min.)

[12, 12]

Subjective Questions (no negative marking) Q.7

(4 marks, 5 min.)

[4, 5]

COMPREHENSION (Q. 1 to 3)

G is the centroid of triangle ABC. Perpendiculars from vertices A, B, C meet the sides BC, CA, AB at D, E, F respectively. P, Q, R are feet of the perpendiculars from G on sides BC, CA, AB respectively. L, M, N are the mid points of sides BC, CA, AB respectively, then

1. Length of the side PG is

- (A) $\frac{1}{2} b \sin C$ (B) $\frac{1}{2} c \sin C$ (C) $\frac{2}{3} b \sin C$ (D) $\frac{1}{3} c \sin B$

2. (Area of $\triangle GPL$) to (Area of $\triangle ALD$) is equal to

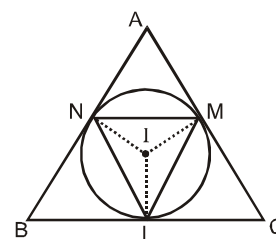
- (A) $\frac{1}{3}$ (B) $\frac{1}{9}$ (C) $\frac{2}{3}$ (D) $\frac{4}{9}$

3. Area of $\triangle PQR$ is

- (A) $\frac{1}{9} (a^2 + b^2 + c^2) \sin A \sin B \sin C$ (B) $\frac{1}{18} (a^2 + b^2 + c^2) \sin A \sin B \sin C$
 (C) $\frac{2}{9} (a^2 + b^2 + c^2) \sin A \sin B \sin C$ (D) $\frac{1}{3} (a^2 + b^2 + c^2) \sin A \sin B \sin C$

4. If the incircle of the $\triangle ABC$ touches its sides at L, M and N as shown in the figure and if x, y, z be the circumradii of the triangles MIN, NIL and LIM respectively, where I is the incentre, then the product xyz is equal to :

- (A) $R r^2$ (B) $r R^2$
 (C) $\frac{1}{2} R r^2$ (D) $\frac{1}{2} r R^2$



5. Given an isosceles triangle, whose one angle is 120° and radius of its incircle is $\sqrt{3}$ unit. Then the area of the triangle in sq. units is

- (A) $7 + 12\sqrt{3}$ (B) $12 - 7\sqrt{3}$ (C) $12 + 7\sqrt{3}$ (D) 4π

6. If in triangle ABC, right angle at B, $s - a = 3$ and $s - c = 2$, then

- (A) $a = 2, c = 3$ (B) $a = 3, c = 4$ (C) $a = 4, c = 3$ (D) $a = 6, c = 8$

7. Circles with radii 3, 4 and 5 touch each other externally. If P is the point of intersection of tangents to these circles at their points of contact, find the distance of P from the points of contact.

Answers Key

1. (D)

2. (B)

3. (B)

4. (C)

5. (C) 6. (B) 7. $\sqrt{5}$