Maths 10th Constructions Paper 1

Total Time: 1.5 Hour   **Total Marks:** 35

General Instructions:
1. All questions are **compulsory**.
2. There is no choice in any of the questions.
3. Question number **1** in **2** Section A is of one-mark question.
4. Question numbers **3** to **4** in Section A are two-mark questions.
5. Question numbers **5** to **10** in Section A are four-mark questions.
6. Question number **11** in Section A is five-mark questions.

Question 1. To draw a pair of tangents to a circle which are inclined to each other at an angle of 35°, it is required to draw tangents at the end points of those two radii of the circle, the angle between which is
(A) 105°   (B) 70°   (C) 140°   (D) 145°

Question 2. To divide a line segment AB in the ratio 5:6, draw a ray AX such that ∠BAX is an acute angle, then draw a ray BY parallel to AX and the points A_1, A_2, A_3, ... and B_1, B_2, B_3, ... are located at equal distances on ray AX and BY, respectively. Then the points joined are
(A) A_5 and B_6 (B) A_6 and B_5 (C) A_4 and B_5 (D) A_5 and B_4

Question 3. Write True or False and give reasons for your answer in each of the following:
   (i) By geometrical construction, it is possible to divide a line segment in the ratio $2\sqrt{3} : 2\sqrt{3}$.
   (ii) By geometrical construction, it is possible to divide a line segment in the ratio $\sqrt{3} : 1/\sqrt{3}$.

Question 4. Can a pair of tangents can be constructed to a circle inclined at an angle of 170°. Give reasons for your answer.

Ouestion 5. Draw a circle of radius 1.5 cm. Take a point P outside it. Without using the centre, draw two tangents to the circle from the point P?

Question 6. Construct a triangle whose perimeter is 13.5 cm and the ratio of the three sides is 2:3:4.

Question 7. Draw a circle with the help of a bangle. Take tangents from this point to the circle.

Question 8. Let ABC be a right triangle in which AB = 6 cm, BC = 8 cm and ∠ B = 90°. BD is the perpendicular from B on AC. The circle through B, C, and D is drawn. Construct the tangents from A to this circle.

Question 9. Draw an isosceles triangle ABC in which AB = AC = 6 cm and BC = 5 cm. Construct a triangle PQR similar to ABC in which PQ = 8 cm. Also justify the construction.

Question 10. Draw two concentric circles of radii 3 cm and 5 cm. Taking a point on outer circle construct the pair of tangents to the other. Measure the length of a tangent and verify it by actual calculation.

Question 11. Draw a parallelogram ABCD in which BC = 5 cm, AB = 3 cm and ∠ABC = 60°, divide it into triangles BCD and ABD by the diagonal BD. Construct the triangle BD′ C′ similar to ΔBDC with scale factor 4/3. Draw the line segment D′A′ parallel to DA where A' lies on extended side BA. Is A′BC′D′ parallelogram?