1. Which of the following are true?

   a) Similarity is transitive.
   b) Similarity is symmetric.
   c) Similarity is anti symmetric.
   d) Similarity is reflexive.

   (i) {a,b,d} (ii) {c,a,b} (iii) {c,b} (iv) {c,d} (v) {c,a}

2. Which of the following are true?

   a) Any two triangles are similar.
   b) Any two triangles are congruent.
   c) Any two circles are congruent.
   d) Any two circles are similar.
   e) Any two squares are congruent.
   f) Any two squares are similar.

   (i) {a,d} (ii) {d,f} (iii) {c,e,d} (iv) {a,f,d} (v) {b,f}

3. A triangle having an area 35.5 sq.cm is enlarged by a scale factor of 1.50. Find the area of its image.

   (i) 84.87 sq.cm (ii) 74.87 sq.cm (iii) 82.87 sq.cm (iv) 79.87 sq.cm (v) 76.87 sq.cm

4. The dimensions of the model of a multi-storey building are 4 cm × 8 cm × 9.5 cm. If the model is drawn to a scale of 1 : 165, find the actual dimensions of the building.

   (i) 660 cm × 1320 cm × 1568.5 cm (ii) 660 cm × 1321 cm × 1567.5 cm (iii) 661 cm × 1321 cm × 1567.5 cm

   (iv) 660 cm × 1320 cm × 1567.5 cm (v) 661 cm × 1320 cm × 1567.5 cm

5. The measurements of a triangular field △ABC are BC = 7 cm, AB = 12 cm and ∠ABC = 90° on a map drawn to a scale of 1 : 18000. Calculate the actual area of the plot in sq.km.

   (i) 0.36 sq.km (ii) 3.36 sq.km (iii) 2.36 sq.km (iv) 9.36 sq.km (v) 1.36 sq.km

6. A triangle having an area 94.27 sq.cm is reduced such that the area of its image is 29.56 sq.cm. Find the scale factor.

   (i) 8.56 (ii) 7.56 (iii) 2.56 (iv) 0.56 (v) 1.56

7. The ratio of the bases of two triangles ABC and DEF is 3:9 .
   If the triangles are equal in area, then the ratio of their heights is

   (i) 9:3 (ii) 4:9 (iii) 3:7 (iv) 3:11 (v) 2:9

8. The dimensions of the model of a multi-storey building are 6 cm × 2 cm × 8.5 cm. If the model is drawn to a scale of 1 : 85, find the floor area of a room of the building whose area in the model is 225 sq.cm.

   (i) 145.56 sq.m (ii) 162.56 sq.m (iii) 168.56 sq.m (iv) 139.56 sq.m (v) 176.56 sq.m

9. A model of building is made with a scale factor of 1 : 70. Find the actual height of the building if the height of the model is 5 cm.

   (i) 4.50 m (ii) 1.50 m (iii) 3.50 m (iv) 5.50 m (v) 2.50 m

10. Which of the following are true?

    a) Any two quadrilaterals are similar if the corresponding sides are proportional.
    b) Any two triangles are similar if the corresponding angles are equal.
    c) Any two quadrilaterals are similar if the corresponding angles are equal.
    d) Any two triangles are similar if the corresponding sides are proportional.

    (i) {c,d} (ii) {c,b} (iii) {c,a,b} (iv) {c,a} (v) {a,b,d}

11. Which of the following are true?

    a) Similar and congruent are not synonymous.
    b) Similar figures have same area.
    c) If two figures are similar, then they are congruent too.
    d) Congruent figures have same area.
    e) If two figures are congruent, then they are similar too.

    (i) {a,d,e} (ii) {b,a} (iii) {b,a,d} (iv) {b,c,e} (v) {c,d}

12. Which of the following are true?

    a) A circle is a polygonal region.
    b) A sector is a polygonal region.
    c) A semi-circle is a polygonal region.
    d) A square is a polygonal region.
    e) A triangle is a polygonal region.

    (i) {d,e} (ii) {b,e} (iii) {b,e,d} (iv) {c,a,d} (v) {a,d}

13. A model of a ship is made to a scale of 1 : 75. If the area of the deck of the model ship is 100 sq.m, calculate the area of the deck of the ship.

    (i) 550500.00 sq.m (ii) 562500.00 sq.m (iii) 566500.00 sq.m (iv) 555500.00 sq.m (v) 577500.00 sq.m

14. A model of a ship is made to a scale of 1 : 60. If length of the model ship is 4 m, calculate the length of the ship.

    (i) 240.00 m (ii) 217.00 m (iii) 226.00 m (iv) 252.00 m

15. A rectangle having an area 280.00 sq.cm is reduced by a scale factor of 0.88. Find the area of its image.

    (i) 233.83 sq.cm (ii) 231.83 sq.cm (iii) 216.83 sq.cm (iv) 212.83 sq.cm (v) 193.83 sq.cm

16. A model of building is made with a scale factor of 1 : 70. Find the volume of the tank on the top of the model if its actual volume is 57066625 cu.cm.

    (i) 168.38 cu.cm (ii) 166.38 cu.cm (iii) 165.38 cu.cm (iv) 164.38 cu.cm (v) 167.38 cu.cm

17. $\triangle ABC$ is a triangle with sides BC = 12 cm, CA = 13 cm and AB = 15 cm. $\triangle ABC$ is enlarged to $\triangle A'B'C'$ such that the smallest side of $\triangle A'B'C'$ is 15 cm. Find the corresponding lengths of the enlarged triangle $\triangle A'B'C'$.

    (i) 14 cm, 15.25 cm, 17.75 cm (ii) 17 cm, 18.25 cm, 20.75 cm (iii) 13 cm, 14.25 cm, 16.75 cm

    (iv) 16 cm, 17.25 cm, 19.75 cm (v) 15 cm, 16.25 cm, 18.75 cm

18. Which of the following are true?

   a) Area of the union of two polygonal region is not equal to the sum of the individual area.
   b) Area of a convex polygonal region is equal to the sum of the areas of all triangles formed by joining the vertices of the polygon with an interior point.
   c) A polygonal region can be divided into a finite number of triangles in a unique way.
   d) Area of the union of two polygonal region is the sum of the individual area.

   (i) {c,a} (ii) {c,b,a} (iii) {d,b} (iv) {a,b} (v) {c,d,a}

19. AB = 18.00 cm, BC = 17.00 cm are the measurements of a rectangular field of land ABCD on a map drawn to a scale of 1 : 16000. Calculate the area of the field.

   (i) 7.83 sq.km (ii) 8.83 sq.km (iii) 9.83 sq.km (iv) 6.83 sq.km (v) 5.83 sq.km

20. Which of the following are necessary conditions for similarity of two polygons ?

   a) The corresponding sides are equal.
   b) The corresponding angles are equal.
   c) The corresponding angles are proportional.
   d) The corresponding sides are proportional.

   (i) {a,d,b} (ii) {a,c,b} (iii) {c,d} (iv) {a,b} (v) {b,d}

21. $\triangle$ABC is a triangle with sides BC = 12 cm, CA = 10 cm and AB = 11 cm. $\triangle$ABC is reduced to $\triangle$A'B'C' such that the smallest side of $\triangle$A'B'C' is 8.33 cm. Find the scale factor.

   (i) $\dfrac{5}{8}$ (ii) $\dfrac{5}{6}$ (iii) $\dfrac{1}{2}$ (iv) $\dfrac{7}{6}$ (v) $\dfrac{5}{4}$

22. AB = 10.00 cm, BC = 8.00 cm are the measurements of a rectangular field of land ABCD on a map drawn to a scale of 1 : 24000. Calculate the diagonal distance of the field.

   (i) 5.07 km (ii) 1.07 km (iii) 2.07 km (iv) 3.07 km (v) 4.07 km

23. A model of a ship is made to a scale of 1 : 130. If the volume of the ship is 15069223000 cu.m, calculate the volume of the model ship.

   (i) 6989.00 cu.m (ii) 6599.00 cu.m (iii) 6859.00 cu.m (iv) 7009.00 cu.m (v) 6739.00 cu.m

24. The dimensions of the model of a multi-storey building are 9.5 cm × 3.5 cm × 9.5 cm. If the model is drawn to a scale of 1 : 200, find the volume of the room in the model whose actual volume is 8000 cu.m.

   (i) 1000.00 cu.cm (ii) 820.00 cu.cm (iii) 1170.00 cu.cm (iv) 1180.00 cu.cm (v) 950.00 cu.cm

25. A rectangle having an area 152.00 sq.cm is enlarged such that the area of its image is 3078.00 sq.cm. Find the scale factor.

   (i) 4.5 (ii) 3.5 (iii) 6.5 (iv) 5.5 (v) 2.5

Assignment Key

1) (i)	2) (ii)	3) (iv)	4) (iv)	5) (v)	6) (iv)
7) (i)	8) (ii)	9) (iii)	10) (v)	11) (i)	12) (i)
13) (ii)	14) (i)	15) (iii)	16) (ii)	17) (v)	18) (iv)
19) (i)	20) (v)	21) (ii)	22) (iv)	23) (iii)	24) (i)
25) (i)					