TYPE–I

1. The in-radius of an equilateral triangle is of length 3 cm. Then the length of each of its medians is

(1) 12 cm (2) $\frac{9}{2}$ cm

(3) 4 cm (4) 9 cm

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)

2. If the orthocentre and the centroid of a triangle are the same, then the triangle is :

(1) Scalene

(2) Right angled

(3) Equilateral

(4) Obtuse angled

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting)

3. If in a triangle, the circumcentre, incentre, centroid and orthocentre coincide, then the triangle is

(1) Acute angled (2) Isosceles

(3) Right angled (4) Equilateral

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

4. In a triangle, if three altitudes are equal, then the triangle is

(1) Obtuse (2) Equilateral

(3) Right (4) Isosceles

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

5. If ABC is an equilateral triangle and D is a point on BC such that AD $\perp$ BC, then

(1) AB : BD = 1 : 1

(2) AB : BD = 1 : 2

(3) AB : BD = 2 : 1

(4) AB : BD = 3 : 2

(SSC Graduate Level Tier-II Exam. 29.09.2013

6. The side QR of an equilateral triangle PQR is produced to the point S in such a way that QR = RS and P is joined to S. Then the measure of $\angle$PSR is

(1) 30° (2) 15°

(3) 60° (4) 45°

(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

7. If the circumradius of an equilateral triangle be 10 cm, then the measure of its in-radius is

(1) 5 cm. (2) 10 cm.

(3) 20 cm. (4) 15 cm.

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone)

8. If the incentre of an equilateral triangle lies inside the triangle and its radius is 3 cm, then the side of the equilateral triangle is

(1) $9\sqrt{3}$ cm (2) $6\sqrt{3}$ cm

(3) $3\sqrt{3}$ cm (4) 6 cm

(SSC Graduate Level Tier-II Exam.16.09.2012)

9. In a triangle, if orthocentre, circumcentre, incentre and centroid coincide, then the triangle must be

(1) obtuse angled

(2) isosceles

(3) equilateral

(4) right-angled

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

10. If ABC is an equilateral triangle and P, Q, R respectively denote the middle points of AB, BC, CA then.

(1) PQR must be an equilateral triangle

(2) PQ + QR + PR = AB

(3) PQ + QR + PR = 2 AB

(4) PQR must be a right angled triangle

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

11. Let ABC be an equilateral triangle and AX, BY, CZ be the altitudes. Then the right statement out of the four given responses is

(1) AX = BY = CZ

(2) AX $\neq$ BY = CZ

(3) AX = BY $\neq$ CZ

(4) AX $\neq$ BY $\neq$ CZ

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting)

12. ABC is an equilateral triangle and CD is the internal bisector of $\angle$ C. If DC is produced to E such that AC = CE, then $\angle$ CAE is equal to

(1) 45° (2) 75°

(3) 30° (4) 15°

(SSC CGL Tier-I Exam. 26.10.2014)

13. G is the centroid of the equilateral Δ ABC. If AB = 10 cm then length of AG is

(1) $\frac{5\sqrt{3}}{3}$ cm (2) $\frac{10\sqrt{3}}{3}$ cm

(3) $5\sqrt{3}$ cm (4) $10\sqrt{3}$ cm

(SSC CGL Tier-II Exam. 21.09.2014)

14. The radius of the incircle of the equilateral triangle having each side 6 cm is

(1) $2\sqrt{3}$ cm (2) $\sqrt{3}$ cm

(3) $6\sqrt{3}$ cm (4) 2 cm

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

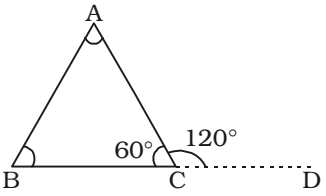
15. If the three medians of a triangle are same then the triangle is

(1) equilateral (2) isosceles

(3) right-angled (4) obtuse-angle

(SSC CHSL DEO & LDC Exam. 9.11.2014)

16. If in a triangle ABC as drawn in the figure, AB = AC and $\angle$ACD = 120°, then $\angle$A is equal to



(1) 50° (2) 60°

(3) 70° (4) 80°

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting)

17. The side BC of a triangle ABC is extended to D. If $\angle$ACD = 120° and $\angle$ABC = $\frac{1}{2}$ $\angle$CAB, then the value of $\angle$ABC is

(1) 80° (2) 40°

(3) 60° (4) 20°

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting)

18. For an equilateral triangle, the ratio of the in-radius and the ex-radius is

(1) 1 : 2 (2) 1 : $\sqrt{2}$

(3) 1 : 3 (4) 1 : $\sqrt{3}$

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

19. If the three angles of a triangle are :

$(x + 15°)$, $\left(\frac{6x}{5} + 6°\right)$ and $\left(\frac{2x}{3} + 30°\right)$, then the triangle is :

(1) isosceles (2) right angled

(3) equilateral (4) scalene

(SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

20. Let ABC be an equilateral triangle and AD perpendicular to BC. Then

$AB^2 + BC^2 + CA^2$ = ?

(1) $2AD^2$ (2) $3AD^2$

(3) $4AD^2$ (4) $5AD^2$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

21. The centroid of an equilateral triangle ABC is G and AB = 10 cm. The length of AG (in cm) is :

(1) $3\frac{1}{3}$ (2) $\frac{10}{\sqrt{3}}$

(3) $\frac{10\sqrt{3}}{3}$ (4) $\frac{\sqrt{3}}{3}$

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

22. Let AX $\perp$ BC of an equilateral triangle ABC. Then the sum of the perpendicular distances of the sides of ΔABC from any point inside the triangle is :

(1) Equal to BC

(2) Equal to AX

(3) Less than AX

(4) Greater than AX

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

23. Let G be the centroid of the equilateral triangle ABC of perimeter 24 cm. Then the length of AG is

(1) $2\sqrt{3}$ cm (2) $\frac{8}{\sqrt{3}}$ cm

(3) $8\sqrt{3}$ cm (4) $4\sqrt{3}$ cm

(SSC CGL Tier-II Online Exam.01.12.2016)

24. O is the orthocentre of ΔABC, and if $\angle BOC = 110°$, then $\angle BAC$ will be

(1) 110° (2) 70°

(3) 100° (4) 90°

(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

25. The altitude of an equilateral triangle of side $\frac{2}{\sqrt{3}}$ cm is :

(1) $\frac{4}{3}$ m (2) $\frac{4}{\sqrt{3}}$ m

(3) $\frac{4}{3}$ m (4) 1 m

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

26. ABC is an equilateral triangle. Points D, E, F are taken in sides AB, BC, CA respectively, so that AD = CF. Then AE, BF, CD enclosed a triangle which is :

(1) equilateral triangle

(2) isosceles triangle

(3) right angle triangle

(4) None of these

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

27. The centroid of an equilateral triangle ABC is G. If AB is 6 cms, the length of AG is

(1) $\sqrt{3}$ cm (2) $2\sqrt{3}$ cm

(3) $3\sqrt{2}$ cm (4) $2\sqrt{2}$ cm

(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (Ist Sitting) and (SSC CGL Tier-II (CBE) Exam. 30.11.2016) and (SSC CGL Tier-II (CBE) Exam. 30.11.2016)

28. In ΔABC, the line parallel to BC intersects AB and AC at P and Q respectively. If AB : AP = 5 : 3, then AQ : QC is :

(1) 3 : 2 (2) 2 : 3

(3) 3 : 5 (4) 1 : 2

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IInd Sitting)

29. The ratio of circumradius and radius of an equilateral triangle is

(1) 1 : 2 (2) 3 : 1

(3) 2 : 1 (4) 1 : 3

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IInd Sitting)

30. If one angle of a triangle is equal to half the sum of the other two equal angles, then the triangle is :

(1) isosceles (2) scalene

(3) equilateral (4) right angled

(SSC CGL Tier-I (CBE) Exam. 02.09.2016 (IInd Sitting)

31. G is the centroid of the equilateral triangle ABC. If AB = 9 cm, then AG is equal to

(1) $3\sqrt{3}$ cm. (2) 3 cm.

(3) $\frac{3\sqrt{3}}{2}$ cm. (4) 6 cm.

(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIIrd Sitting)

32. The lengths of the sides of a triangle are a, b and c respectively. If $a^2 + b^2 + c^2 = ab + bc + ca$, then the triangle is :

(1) isosceles (2) equilateral

(3) scalene (4) right-angled

(SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IInd Sitting)

33. PQR is an equilateral triangle. MN is drawn parallel to QR such that M is on PQ and N is on PR. If PN = 6 cm, then the length of MN is

(1) 3 cm (2) 6 cm

(3) 12 cm (4) 4.5 cm

(SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIIrd Sitting)

TYPE–II

1. If ΔABC is an isosceles triangle with $\angle C = 90°$ and AC = 5 cm, then AB is :

(1) 5 cm (2) 10 cm

(3) $5\sqrt{2}$ cm (4) 2.5 cm

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

2. ABC is an isosceles triangle such that AB = AC and $\angle B = 35°$. AD is the median to the base BC. Then $\angle BAD$ is:

(1) 70° (2) 35°

(3) 110° (4) 55°

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

3. ABC is an isosceles triangle with AB = AC. A circle through B touching AC at the middle point intersects AB at P. Then AP : AB is :
(1) 4 : 1 (2) 2 : 3
(3) 3 : 5 (4) 1 : 4
(SSC Graduate Level Tier-I Exam. 21.04.2013)

4. In an isosceles triangle, if the unequal angle is twice the sum of the equal angles, then each equal angle is
(1) 120° (2) 60°
(3) 30° (4) 90°
(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

5. Δ ABC is an isosceles triangle and $\overline{AB}$ $\overline{AC} = 2a$ unit, $\overline{BC} = a$ unit. Draw $\overline{AD} \perp \overline{BC}$, and find the length of $\overline{AD}$.
(1) $\sqrt{15}\ a$ unit (2) $\frac{\sqrt{15}}{2}\ a$ unit
(3) $\sqrt{17}\ a$ unit (4) $\frac{\sqrt{17}}{2}\ a$ unit
(SSC Graduate Level Tier-II Exam. 29.09.2013

6. An isosceles triangle ABC is right-angled at B.D is a point inside the triangle ABC. P and Q are the feet of the perpendiculars drawn from D on the side AB and AC respectively of Δ ABC. If AP = a cm, AQ = b cm and ∠BAD = 15°, sin 75°=
(1) $\frac{2b}{\sqrt{3}\,a}$ (2) $\frac{a}{2b}$
(3) $\frac{\sqrt{3}a}{2b}$ (4) $\frac{2a}{\sqrt{3}\,b}$
(SSC Graduate Level Tier-II Exam. 29.09.2013

7. ABC is an isosceles triangle with AB = AC. The side BA is produced to D such that AB = AD. If ∠ABC = 30°, then ∠BCD is equal to
(1) 45° (2) 90°
(3) 30° (4) 60°
(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

8. In a triangle ABC, AB = AC, ∠BAC = 40° Then the external angle at B is :
(1) 90° (2) 70°
(3) 110° (4) 80°
(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

9. If Δ FGH is isosceles and FG < 3 cm, GH = 8 cm, then of the following, the true relation is.
(1) GH = FH (2) GF = GH
(3) FH > GH (4) GH < GF
(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

10. If angle bisector of a triangle bisect the opposite side, then what type of triangle is it ?
(1) Right angled (2) Scalene
(3) Similar (4) Isosceles
(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting)

11. ABC is an isosceles triangle such that AB = AC and AD is the median to the base BC with ∠ABC = 35°. Then ∠BAD is
(1) 35° (2) 55°
(3) 70° (4) 110°
(SSC CGL Tier-II Exam. 21.09.2014)

12. In Δ ABC, BD and CE are perpendicular to AC and AB respectively. If BD = CE, then Δ ABC is
(1) Equilateral (2) Isosceles
(3) Right–angled (4) Scalene
(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

13. In an isosceles triangle, if the vertex angle is twice the sum of the base angles, then the measure of the half of the vertex angle of the triangle is
(1) 60° (2) 70°
(3) 80° (4) 50°
(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

14. ΔABC is an isosceles triangle with AB = AC = 10 cm, AD = 8 cm is the median on BC from A. The length of BC is
(1) 8 cm (2) 12 cm
(3) 10 cm (4) 6 cm
(SSC CGL Tier-I Re-Exam, 30.08.2015)

15. ABC is an isosceles triangle inscribed in a circle. If AB = AC = $12\sqrt{5}$ cm and BC = 24 cm then the radius of circle is
(1) 10 cm. (2) 15 cm.
(3) 12 cm. (4) 14 cm.
(SSC CGL Tier-II Online Exam.01.12.2016)

16. ABC is an isosceles triangle where AB = AC which is circumscribed about a circle. If P is the point where the circle touches the side BC, then which of the following is true?
(1) BP = PC (2) BP > PC
(3) BP < PC (4) BP = $\frac{1}{2}$PC
(SSC CGL Tier-II Online Exam.01.12.2016)

17. In an isosceles triangle ABC, AB = AC, XY ∥ BC. If ∠A = 30°, then ∠BXY = ?
(1) 75° (2) 30°
(3) 150° (4) 105°
(SSC CGL Tier-I (CBE) Exam. 07.09.2016) (Ist Sitting)

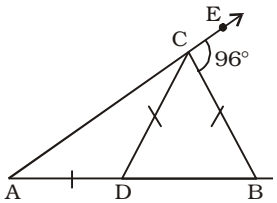
18. The vertical angle A of an isosceles triangle ΔABC is three times the angle B of it. The measure of the angle A is
(1) 90° (2) 108°
(3) 100° (4) 36°
(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)

19. ΔABC is isosceles having AB = AC and ∠A = 40°. Bisectors PO and OQ of the exterior angles ∠ABD and ∠ACE formed by producing BC on both sides, meet at O. Then the value of ∠BOC is
(1) 70° (2) 110°
(3) 80° (4) 55°
(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

20. ΔABC is an isosceles triangle with AB = AC = 15 cm and altitude from A to BC is 12 cm. The length of side BC is :
(1) 9 cm. (2) 12 cm.
(3) 18 cm. (4) 20 cm.
(SSC CGL Tier-I (CBE) Exam. 28.08.2016 (Ist Sitting)

21. In an isosceles ΔABC, AD is the median to the unequal side meeting BC at D. DP is the angle bisector of ∠ADB and PQ is drawn parallel to BC meeting AC at Q. Then the measure of ∠PDQ is :
(1) 130° (2) 90°
(3) 180° (4) 45°
(SSC CGL Tier-I (CBE) Exam. 29.08.2016 (Ist Sitting)

22. In the figure (not drawn to scale) given below, if AD = DC = BC and ∠BCE = 96°, then ∠DBC is :



(1) 32° (2) 84°
(3) 64° (4) 96°

(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIIrd Sitting)

23. In an isosceles triangle ΔABC, AB = AC and ∠A = 80°. The bisector of ∠B and ∠C meet at D. The ∠BDC is equal to

(1) 90° (2) 100°
(3) 130° (4) 80°

(SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIIrd Sitting)

24. ΔABC is an isosceles right angled triangle having ∠C = 90°. If D is any point on AB, then $AD^2 + BD^2$ is equal to

(1) CD^2 (2) $2CD^2$
(3) $3CD^2$ (4) $4CD^2$

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

TYPE–III

1. The sides of a triangle are in the ratio 3 : 4 : 6. The triangle is :

(1) acute-angled
(2) right-angled
(3) obtuse-angled
(4) either acute-angled or right-angled

(SSC CPO Sub-Inspector Exam. 16.12.2007)

2. O and C are respectively the orthocentre and circumcentre of an acute-angled triangle PQR. The points P and O are joined and produced to meet the side QR at S. If ∠PQS = 60° and ∠QCR = 130°, then ∠RPS =

(1) 30° (2) 35°
(3) 100° (4) 60°

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)

3. In Δ ABC, AD is the internal bisector of ∠A, meeting the side BC at D. If BD = 5 cm, BC = 7.5 cm, then AB : AC is

(1) 2 : 1 (2) 1 : 2
(3) 4 : 5 (4) 3 : 5

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone)

4. If the circumcentre of a triangle lies outside it, then the triangle is

(1) Equilateral
(2) Acute angled
(3) Right angled
(4) Obtuse angled

(SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting)

5. Taking any three of the line segments out of segments of length 2 cm, 3 cm, 5 cm and 6 cm, the number of triangles that can be formed is :

(1) 3 (2) 2
(3) 1 (4) 4

(SSC Graduate Level Tier-I Exam. 21.04.2013)

6. If the length of the sides of a triangle are in the ratio 4 : 5 : 6 and the inradius of the triangle is 3 cm, then the altitude of the triangle corresponding to the largest side as base is :

(1) 7.5 cm (2) 6 cm
(3) 10cm (4) 8 cm

(SSC Graduate Level Tier-I Exam. 21.04.2013)

7. ABC is a triangle. The bisectors of the internal angle ∠B and external angle ∠C intersect at D. If ∠BDC= 50°, then ∠A is

(1) 100° (2) 90°
(3) 120° (4) 60°

(SSC Graduate Level Tier-I Exam. 21.04.2013)

8. In a triangle ABC, the side BC is extended up to D. Such that CD = AC, if ∠BAD = 109° and ∠ACB = 72° then the value of ∠ABC is

(1) 35° (2) 60°
(3) 40° (4) 45°

(SSC Graduate Level Tier-I Exam. 21.04.2013)

9. The sum of three altitudes of a triangle is

(1) equal to the sum of three sides
(2) less than the sum of sides
(3) greater than the sum of sides
(4) twice the sum of sides

(SSC Graduate Level Tier-I Exam. 19.05.2013)

10. I is the incentre of Δ ABC, ∠ABC = 60° and ∠ACB = 50°. Then ∠ BIC is :

(1) 55° (2) 125°
(3) 70° (4) 65°

(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone)

11. I is the incentre of a triangle ABC. If ∠ABC = 65° and ∠ACB = 55°, then the value of ∠BIC is

(1) 130° (2) 120°
(3) 140° (4) 110°

(SSC Graduate Level Tier-II Exam.16.09.2012)

12. If two angles of a triangle are 21° and 38°, then the triangle is

(1) Right-angled triangle
(2) Acute-angled triangle
(3) Obtuse-angled triangle
(4) Isosceles triangle

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting)

13. In ΔABC, ∠C is an obtuse angle. The bisectors of the exterior angles at A and B meet BC and AC produced at D and E respectively. If AB = AD = BE, then ∠ACB =

(1) 105° (2) 108°
(3) 110° (4) 135°

(SSC CGL Tier-I Exam. 19.10.2014)

14. A man goes 24 m due west and then 10 m due north. Then the distance of him from the starting point is

(1) 17 m (2) 26 m
(3) 28 m (4) 34 m

(SSC CGL Tier-II Exam. 21.09.2014)

15. The perpendiculars drawn from the vertices to the opposite sides of a triangle, meet at the point whose name is

(1) incentre
(2) circumcentre
(3) centroid
(4) orthocentre

(SSC CHSL DEO & LDC Exam. 20.10.2013)

16. If in Δ ABC, ∠ABC = 5 ∠ACB and ∠BAC = 3 ∠ACB, then ∠ABC = ?

(1) 130° (2) 80°
(3) 100° (4) 120°

(SSC CHSL DEO & LDC Exam. 20.10.2013)

17. The exterior angles obtained on producing the base BC of a triangle ABC in both ways are 120° and 105°, then the vertical ∠A of the triangle is of measure

(1) 36° (2) 40°
(3) 45° (4) 55°

(SSC CHSL DEO & LDC Exam. 27.10.2013 IInd Sitting)

18. If AD, BE and CF are medians of ΔABC, then which one of the following statements is correct ?

(1) (AD + BE + CF) < AB + BC + CA
(2) AD+BE + CF > AB + BC + CA
(3) AD+BE + CF = AB + BC + CA
(4) $AD+BE+CF=\sqrt{2}$ (AB+BC+ CA)

(SSC CHSL DEO & LDC Exam. 27.10.2013 IInd Sitting)

19. In ΔABC, the internal bisectors of $\angle ABC$ and $\angle ACB$ meet at I and $\angle BAC = 50°$. The measure of $\angle BIC$ is
(1) 105° (2) 115°
(3) 125° (4) 130°
(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

20. AD is the median of a triangle ABC and O is the centroid such that AO = 10 cm. The length of OD (in cm) is
(1) 4 (2) 5
(3) 6 (4) 8
FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I) North Zone (Ist Sitting)

21. O is the incentre of ΔABC and $\angle A = 30°$, then $\angle BOC$ is
(1) 100° (2) 105°
(3) 110° (4) 90°
(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)

22. Let *O* be the in-centre of a triangle *ABC* and *D* be a point on the side *BC* of ΔABC, such that $OD \perp BC$. If $\angle BOD = 15°$, then $\angle ABC =$
(1) 75° (2) 45°
(3) 150° (4) 90°
(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)

23. In a triangle ABC, incentre is O and $\angle BOC = 110°$, then the measure of $\angle BAC$ is :
(1) 20° (2) 40°
(3) 55° (4) 110°
(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)

24. The equidistant point from the vertices of a triangle is called its :
(1) Centroid (2) Incentre
(3) Circumcentre (4) Orthocentre
(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting)

25. O is the in-centre of the ΔABC, if $\angle BOC = 116°$, then $\angle BAC$ is
(1) 42° (2) 62°
(3) 58° (4) 52°
(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

26. The external bisector of $\angle B$ and $\angle C$ of ΔABC (where AB and AC extended to E and F respectively) meet at point P. If $\angle BAC = 100°$, then the measure of $\angle BPC$ is
(1) 50° (2) 80°
(3) 40° (4) 100°
FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I) North Zone (Ist Sitting)

27. The points D and E are taken on the sides AB and AC of ΔABC such that $AD = \frac{1}{3}$ AB, $AE = \frac{1}{3}$ AC. If the length of BC is 15 cm, then the length of DE is :
(1) 10 cm (2) 8 cm
(3) 6 cm (4) 5 cm
(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)

28. *D* is any point on side *AC* of $\bullet ABC$. If *P, Q, X, Y* are the mid-points of *AB*, *BC*, *AD* and *DC* respectively, then the ratio of *PX* and *QY* is
(1) 1 : 2 (2) 1 : 1
(3) 2 : 1 (4) 2 : 3
(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)

29. In Δ ABC, PQ is parallel to BC. If AP : PB = 1 : 2 and AQ = 3 cm; AC is equal to
(1) 6 cm (2) 9 cm
(3) 12 cm (4) 8 cm
(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)

30. In a triangle ABC, AB + BC = 12 cm, BC + CA = 14 cm and CA + AB = 18 cm. Find the radius of the circle (in cm) which has the same perimeter as the triangle.
(1) $\frac{5}{2}$ (2) $\frac{7}{2}$
(3) $\frac{9}{2}$ (4) $\frac{11}{2}$
(SSC Graduate Level Tier-II Exam.16.09.2012)

31. If I be the incentre of Δ ABC and $\angle B = 70°$ and $\angle C = 50°$, then the magnitude of $\angle BIC$ is
(1) 130° (2) 60°
(3) 120° (4) 105°
(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

32. For a triangle ABC, D, E, F are the mid-points of its sides. If ΔABC = 24 sq. units then ΔDEF is
(1) 4 sq. units (2) 6 sq. units
(3) 8 sq. units (4) 12 sq. units
(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

33. Angle between sss $\angle B$ is
(1) 50° (2) 80°
(3) 40° (4) 60°
(SSC CGL Tier-II Exam. 21.09.2014)

42. In a Δ ABC, $\angle A + \angle B = 70°$ and $\angle B + \angle C = 130°$, value of $\angle A$ is
(1) 20° (2) 50°
(3) 110° (4) 30°
(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting)

43. In a Δ ABC, if $2 \angle A = 3 \angle B = 6 \angle C$, value of $\angle B$ is
(1) 60° (2) 30°
(3) 45° (4) 90°
(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting)

44. If in a triangle ABC, D and E are on the sides AB and AC, such that, DE is parallel to BC and $\frac{AD}{BD} = \frac{3}{5}$. If AC = 4 cm, then AE is
(1) 1.5 cm (2) 2.0 cm
(3) 1.8 cm (4) 2.4 cm
(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting)

45. AD is the median of a triangle ABC and O is the centroid such that AO = 10 cm. Length of OD (in cm) is
(1) 2 (2) 4
(3) 5 (4) 7
(SSC CHSL DEO & LDC Exam. 16.11.2014)

46. The measure of the angle between the internal and external bisectors of an angle is
(1) 60° (2) 70°
(3) 80° (4) 90°
(SSC CHSL DEO & LDC Exam. 16.11.2014)

47. The internal bisectors of the angles B and C of a triangle ABC meet at I. If $\angle BIC = \frac{\angle A}{2} + X$, then X is equal to
(1) 60° (2) 30°
(3) 90° (4) 45°
(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting)

48. In a ΔABC, the medians AD, BE and CF meet at G, then which of the following is true ?

(1) $AD + BE + CF > \frac{1}{2}(AB + BC + AC)$

(2) $2(AD + BE + CF) > (AB + BC + AC)$

(3) $3(AD + BE + CF) > 4(AB + BC + AC)$

(4) $AB + BC + AC > AD + BE + CF$

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting)

49. In ΔABC, D is the mid-point of BC. Length AD is 27 cm. N is a point in AD such that the length of DN is 12 cm. The distance of N from the centroid of ΔABC is equal to

(1) 3 cm (2) 6 cm

(3) 9 cm (4) 15 cm

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting)

50. In a Δ ABC, $\frac{AB}{AC} = \frac{BD}{DC}, \angle B = 70°$ and $\angle C = 50°$, then $\angle BAD$ = ?

(1) 60° (2) 20°

(3) 30° (4) 50°

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KP0)

51. In a Δ ABC, AD, BE and CF are three medians. The perimeter of Δ ABC is always

(1) equal to $\left(\overline{AD} + \overline{BE} + \overline{CF}\right)$

(2) greater than $\left(\overline{AD} + \overline{BE} + \overline{CF}\right)$

(3) less than $\left(\overline{AD} + \overline{BE} + \overline{CF}\right)$

(4) None of these

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KP0)

52. In a Δ ABC, $\overline{AD}$, $\overline{BE}$ and $\overline{CF}$ are three medians. Then the ratio $\left(\overline{AD} + \overline{BE} + \overline{CF}\right)$: $\left(\overline{AB} + \overline{AC} + \overline{BC}\right)$ is

(1) equal to $\frac{3}{4}$

(2) less than $\frac{3}{4}$

(3) greater than $\frac{3}{4}$

(4) equal to $\frac{1}{2}$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014 TF No. 999 KP0)

53. In ΔABC, $\angle A < \angle B$. The altitude to the base divides vertex angle C into two parts C_1 and C_2, with C_2, adjacent to BC. Then

(1) $C_1 + C_2 = A + B$

(2) $C_1 - C_2 = A - B$

(3) $C_1 - C_2 = B - A$

(4) $C_1 + C_2 = B - A$

(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

54. If O is the in-centre of ΔABC; if $\angle BOC = 120°$, then the measure of $\angle BAC$ is

(1) 30° (2) 60°

(3) 150° (4) 75°

(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

55. In Δ ABC, $\angle B = 60°$, $\angle C = 40°$, AD is the bisector of $\angle A$ and AE is drawn perpendicular on BC from A. Then the measure of $\angle EAD$ is

(1) 40° (2) 30°

(3) 10° (4) 80°

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

56. If the sides of a triangle are extended in both the sides then the sum of the exterior angles so formed in both sides is

(1) 360° (2) 540°

(3) 720° (4) 180°

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)

57. In ΔABC, $\angle A = 90°$, BP and CQ are two medians. Then the value of $\frac{BP^2 + CQ^2}{BC^2}$ is

(1) $\frac{4}{5}$ (2) $\frac{5}{4}$

(3) $\frac{3}{4}$ (4) $\frac{3}{5}$

(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)

58. In Δ ABC, AB = AC, O is a point on BC such that BO = CO and OD is perpendicular to AB and OE is perpendicular to AC. If $\angle BOD = 30°$ then measure of $\angle AOE$ is

(1) 45° (2) 60°

(3) 75° (4) 30°

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

59. O is the orthocentre of ΔABC. Then $\angle BOC + \angle BAC$ is equal to

(1) 120° (2) 135°

(3) 180° (4) 90°

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

60. ABC is a triangle and the sides AB, BC and CA are produced to E, F and G respectively. If $\angle CBE = \angle ACF = 130°$ then the value of $\angle GAB$ is

(1) 100° (2) 130°

(3) 80° (4) 90°

(SSC CGL Tier-I Exam, 09.08.2015 (IInd Sitting) TF No. 4239378)

61. The measures of two angles of a triangle are in the ratio 4 : 5. If the sum of these two measures is equal to the measure of the third angle, find the smallest angle.

(1) 10° (2) 50°

(3) 90° (4) 40°

(SSC CGL Tier-I Exam, 09.08.2015 (IInd Sitting) TF No. 4239378)

62. Internal bisectors of $\angle Q$ and $\angle R$ of ΔPQR intersect at O. If $\angle ROQ = 96°$ then the vlaue of $\angle RPQ$ is

(1) 36° (2) 24°

(3) 12° (4) 6°

(SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

63. G is the centroid of ΔABC. The medians AD and BE intersect at right angles. If the lengths of AD and BE are 9 cm and 12 cm respectively; then the length of AB (in cm) is

(1) 9.5 (2) 10

(3) 11 (4) 10.5

(SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

64. In ΔABC, D and E are two mid points of sides AB and AC respectively. If $\angle BAC = 40°$ and $\angle ABC = 65°$ then $\angle CED$ is :

(1) 130° (2) 75°

(3) 125° (4) 105°

(SSC CGL Tier-I Exam, 16.08.2015 (IInd Sitting) TF No. 2176783)

65. O is the incentre of ΔPQR and ∠QPR = 50°, then the measure of ∠QOR is :
(1) 125° (2) 100°
(3) 130° (4) 115°
(SSC CGL Tier-I Exam, 16.08.2015 (IInd Sitting) TF No. 2176783)

66. The internal bisectors of the ∠B and ∠C of the ΔABC, intersect at O. If ∠A = 100°, then the measure of ∠BOC is :
(1) 140° (2) 120°
(3) 110° (4) 130°
(SSC CGL Tier-I Exam, 16.08.2015 (IInd Sitting) TF No. 2176783)

67. In Δ ABC ∠BAC = 90° and AD ⊥ BC. If BD = 3 cm and CD = 4 cm, then the length of AD is
(1) 3.5 cm (2) 5 cm
(3) $2\sqrt{3}$ cm (4) 6 cm
(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

68. AD is perpendicular to the internal bisector of ∠ABC of Δ ABC. DE is drawn through D and parallel to BC to meet AC at E. If the length of AC is 12 cm, then the length of AE (in cm.) is
(1) 3 (2) 8
(3) 4 (4) 6
(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

69. What is the position of the circumcentre of an obtuse–angled triangle?
(1) It lies inside the triangle.
(2) It lies outside the triangle.
(3) It is the mid–point of the largest side.
(4) It is the vertex opposite to the largest side.
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

70. In ΔABC, the external bisectors of the angles ∠B and ∠C meet at the point O. If ∠A = 70°, then the measure of ∠BOC is :
(1) 55° (2) 75°
(3) 60° (4) 50°
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

71. E is the mid-point of the median AD of ΔABC. BE is joined and produced to meet AC at F. F divides AC in the ratio :
(1) 2 : 3 (2) 2 : 1
(3) 1 : 3 (4) 3 : 2
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

72. In Δ ABC, the internal bisectors of ∠B and ∠C meet at point O. If ∠A = 80°, then ∠BOC is equal to :
(1) 100° (2) 120°
(3) 130° (4) 140°
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

73. The sides of a triangle are in the ratio of 7 : 9 : 12. The difference between the lengths of largest and smallest sides is 15 cm. The length of the largest side would be :
(1) 36 cm (2) 12 cm
(3) 60 cm (4) 24 cm
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

74. In ΔABC, $\angle B = 60°$, and $\angle C = 40°$, AD and AE are respectively the bisector of $\angle A$ and perpendicular on BC. The measure of $\angle EAD$ is :
(1) 11° (2) 10°
(3) 12° (4) 9°
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

75. The side BC of a triangle ABC is produced to D. If ∠ACD = 112° and ∠ B = $\frac{3}{4}$ ∠ A, then the measure of ∠ B is
(1) 30° (2) 48°
(3) 45° (4) 64°
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

76. In a triangle ABC, if ∠A + ∠C = 140° and ∠A + 3∠B = 180°, then ∠A is equal to
(1) 80° (2) 40°
(3) 60° (4) 20°
(SSC CGL Tier-I (CBE) Exam.10.09.2016)

77. Which of the set of three sides can't form a triangle?
(1) 5 cm, 6 cm, 7 cm
(2) 5 cm, 8 cm, 15 cm
(3) 8 cm, 15 cm, 18 cm
(4) 6 cm, 7 cm, 11 cm
(SSC CGL Tier-I (CBE) Exam.10.09.2016)

78. The orthocentre of a triangle is the point where
(1) the medians meet
(2) the altitudes meet
(3) the right bisectors of the sides meet
(4) the bisectors of the angles meet
(SSC CGL Tier-I (CBE) Exam.11.09.2016) (Ist Sitting)

79. G is the centroid of ΔABC. If AG = BC, then measure of ∠BGC is
(1) 45° (2) 60°
(3) 90° (4) 120°
(SSC CGL Tier-I (CBE) Exam.11.09.2016) (Ist Sitting)

80. B_1 is a point on the side AC of ΔABC and B_1B is joined. A line is drawn through A parallel to B_1B meeting BC at A_1 and another line is drawn through C parallel to B_1B meeting AB produced at C_1. Then
(1) $\frac{1}{CC_1} - \frac{1}{AA_1} = \frac{1}{BB_1}$
(2) $\frac{1}{CC_1} + \frac{1}{AA_1} = \frac{1}{BB_1}$
(3) $\frac{1}{BB_1} - \frac{1}{AA_1} = \frac{2}{CC_1}$
(4) $\frac{1}{AA_1} - \frac{1}{CC_1} = \frac{2}{BB_1}$
(SSC CGL Tier-II Online Exam.01.12.2016)

81. Astha cuts a triangle out of a cardboard and tries to balance the triangle horizontally at the tip of her finger. On what point will she be able to balance the shape for any kind of triangle?
(1) Incentre
(2) Circumcentre
(3) Centroid
(4) Orthocentre
(SSC CPO Exam. 06.06.2016) (Ist Sitting)

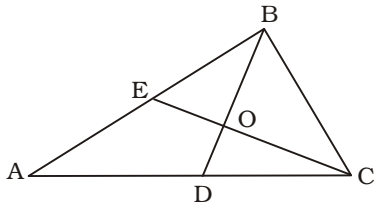
82. BE and CF are two altitudes of a triangle ABC. If AB = 6 cm, AC = 5 cm and CF = 4 cm, then the length of BE is
(1) 4.8 cm (2) 7.5 cm
(3) 3.33 cm (4) 5.5 cm
(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

83. In a ΔABC, BC is extended upto D. ∠ACD = 120°, ∠B = $\frac{1}{2}$ ∠A. Then ∠A is
(1) 60° (2) 75°
(3) 80° (4) 90°
(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

84. In ΔABC, D is the mid–point of BC and G is the centroid. If GD = 5 cm, then the length of AD is :
(1) 10 cm (2) 12 cm
(3) 15 cm (4) 20 cm
(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (Ist Sitting)

85. Possible measures of three angles of a triangle are
(1) 33°, 42°, 115°
(2) 40°, 70°, 80°
(3) 30°, 60°, 100°
(4) 50°, 60°, 70°
(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)

86. BD and CE are two medians of the triangle ABC. If EO = 7cm, then the length of CE is



(1) 28 cm (2) 14 cm
(3) 21 cm (4) 35 cm
(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)

87. In ΔABC, AB = $a - b$, AC = $\sqrt{a^2+b^2}$ and BC = $\sqrt{2ab}$, then find angle B.
(1) 60° (2) 30°
(3) 90° (4) 45°
(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IInd Sitting)

88. Possible lengths of the three sides of a triangle are :
(1) 2 cm, 3 cm and 6 cm
(2) 3 cm, 4 cm and 5 cm
(3) 2.5 cm, 3.5 cm and 6 cm
(4) 4 cm, 4 cm and 9 cm
(SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IInd Sitting)

89. AD is the median of Δ ABC. If O is the centroid and AO = 10 cm, then OD is
(1) 5 cm (2) 20 cm
(3) 10 cm (4) 30 cm
(SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IInd Sitting)

90. Incentre of Δ ABC is I. ∠ABC = 90° and ∠ACB = 70°. ∠AIC is
(1) 115° (2) 100°
(3) 110° (4) 105°
(SSC CGL Tier-I (CBE) Exam. 28.08.2016) (IInd Sitting)

91. If in ΔABC, DE||BC, AB = 7.5 cm, BD = 6 cm. and DE = 2cm, then the length of BC in cm is :
(1) 6 (2) 8
(3) 10 (4) 10.5
(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IInd Sitting)

92. Suppose that the medians BD, CE and AF of a triangle ABC meet at G. Then AG : GF is
(1) 1 : 2 (2) 2 : 1
(3) 1 : 3 (4) 2 : 3
(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IInd Sitting)

93. In case of an acute angled triangle, its orthocentre lies
(1) inside the triangle
(2) outside the triangle
(3) on the traingle
(4) on one of the vertices of the triangle
(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)

94. The centroid of a triangle is the point where
(1) the medians meet
(2) the altitudes meet
(3) the right bisectors of the sides of the triangle meet
(4) the bisectors of the angles of the triangle meet
(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (Ist Sitting)

95. In a triangle PQR, the side QR is extended to S. ∠QPR = 72° and ∠PRS = 110°, then the value of ∠PQR is :
(1) 38° (2) 32°
(3) 25° (4) 29°
(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (Ist Sitting)

96. In ΔABC, ∠B = 70° and ∠C = 60°. The internal bisectors of the two smallest angles of ΔABC meet at O. The angle so formed at O is
(1) 125° (2) 120°
(3) 115° (4) 110°
(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (Ist Sitting)

97. If the angles of a triangle are in the ratio of 2 : 3 : 4, then the difference of the measure of greatest angle and smallest angle is
(1) 20° (2) 30°
(3) 40° (4) 50°
(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (Ist Sitting)

98. In ΔABC, ∠A = 90°, AD ⊥ BC and AD = BD = 2 cm. The length of CD is
(1) 3 cm (2) 3.5 cm
(3) 3.2 cm (4) 2 cm
(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (Ist Sitting)

99. The side BC of ΔABC is extended to the point D. If ∠ACD = 112° and ∠B = $\frac{3}{4}$ ∠A, then the value of ∠B is
(1) 64° (2) 48°
(3) 46° (4) 50°
(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)

100. The lengths of side AB and side BC of a scalene triangle ABC are 12 cm and 8 cm respectively. The size of angle C is 90°. Find the **approximate** length of side AC.
(1) 12 (2) 9
(3) 14 (4) 16
(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)

101. In ΔABC, DE||BC such that $\frac{AD}{BD} = \frac{3}{5}$. If AC = 5.6 cm., then AE is equal to
(1) 4.2 cm. (2) 3.1 cm.
(3) 2.8 cm. (4) 2.1 cm.
(SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IInd Sitting)

102. In a triangle PQR, PQ = PR and ∠Q is twice that of ∠P. Then ∠Q is equal to
(1) 72° (2) 36°
(3) 144° (4) 108°
(SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IInd Sitting)

103. G and AD are respectively the centroid and median of the triangle ΔABC.The ratio AG:AD is equal to
(1) 3:2 (2) 2:3
(3) 2:1 (4) 1:2
(SSC CGL Tier-I (CBE) Exam. 04.09.2016) (Ist Sitting)

104. A point P lying inside a triangle is equidistant from the vertices of the triangle. Then the triangle has P as its
(1) Centroid (2) Incentre
(3) Orthocentre (4) Circumcentre
(SSC CGL Tier-I (CBE) Exam. 04.09.2016) (Ist Sitting)

SHORT ANSWERS

TYPE-I

1. (4)	**2.** (3)	**3.** (4)	**4.** (2)
5. (3)	**6.** (1)	**7.** (1)	**8.** (2)
9. (3)	**10.** (1)	**11.** (1)	**12.** (4)
13. (2)	**14.** (2)	**15.** (1)	**16.** (2)
17. (2)	**18.** (1)	**19.** (3)	**20.** (4)
21. (3)	**22.** (2)	**23.** (2)	**24.** (2)
25. (4)	**26.** (1)	**27.** (2)	**28.** (1)
29. (3)	**30.** (3)	**31.** (1)	**32.** (2)
33. (2)			

TYPE-II

1. (3)	**2.** (4)	**3.** (4)	**4.** (3)
5. (2)	**6.** (3)	**7.** (2)	**8.** (3)
9. (1)	**10.** (4)	**11.** (2)	**12.** (2)
13. (1)	**14.** (2)	**15.** (2)	**16.** (1)
17. (4)	**18.** (2)	**19.** (1)	**20.** (3)
21. (2)	**22.** (3)	**23.** (3)	**24.** (3)

TYPE-III

1. (3)	**2.** (2)	**3.** (1)	**4.** (4)
5. (2)	**6.** (1)	**7.** (1)	**8.** (1)
9. (2)	**10.** (2)	**11.** (2)	**12.** (3)
13. (2)	**14.** (2)	**15.** (4)	**16.** (3)
17. (3)	**18.** (1)	**19.** (2)	**20.** (2)
21. (2)	**22.** (3)	**23.** (2)	**24.** (3)
25. (4)	**26.** (3)	**27.** (4)	**28.** (2)
29. (2)	**30.** (2)	**31**. (3)	**32.** (2)
33. (3)	**34.** (3)	**35.** (1)	**36.** (4)
37. (4)	**38.** (3)	**39.** (4)	**40.** (2)
41. (2)	**42.** (2)	**43.** (1)	**44.** (1)
45. (3)	**46.** (4)	**47.** (3)	**48.** (4)
49. (1)	**50.** (3)	**51.** (2)	**52.** (*)
53. (3)	**54.** (2)	**55.** (3)	**56.** (3)
57. (2)	**58.** (2)	**59.** (3)	**60.** (1)
61. (4)	**62.** (3)	**63.** (2)	**64.** (4)
65. (4)	**66.** (1)	**67.** (3)	**68.** (4)
69. (2)	**70.** (1)	**71.** (2)	**72.** (3)
73. (1)	**74.** (2)	**75.** (2)	**76.** (3)
77. (2)	**78.** (2)	**79.** (3)	**80.** (2)
81. (3)	**82.** (1)	**83.** (3)	**84.** (3)
85. (4)	**86.** (3)	**87.** (3)	**88.** (2)
89. (1)	**90.** (*)	**91.** (3)	**92.** (2)
93. (1)	**94.** (1)	**95.** (1)	**96.** (1)
97. (3)	**98.** (4)	**99.** (2)	**100.** (2)
101. (4)	**102.** (1)	**103.** (2)	**104.** (4)