

FIITJEE INTERNAL TEST

Batches: Udaya Two Yr CRP(2224)

PHASE TEST – 2

QP CODE:

Time : 1:30 Hrs.

Maximum Marks : 90

Scholastic Aptitude Test

Instructions

- The question paper consists of **90** multiple choice questions divided into four sections.
Section – I contains **45** questions of **Mathematics**.
Section – II contains **15** questions of **Physics**.
Section – III contains **15** questions of **Chemistry**.
Section – IV contains **15** questions of **Biology**.
- Each question carries **+1** marks.
- There is **No negative** marking.
- Attempt **All** questions.
- Use of Calculator is **NOT PERMITTED**.
- All symbols have their usual meanings, if not mentioned in the question.
- The Question Paper contains blank spaces for your rough work.
No additional sheets will be provided for rough work.
- This booklet also contains **OMR** answer sheet.

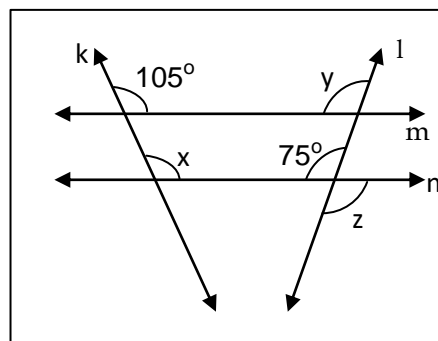
Name of the Candidate :

Enrollment Number :

SECTION – I MATHEMATICS

1. Consider the following figure.
If $m \parallel n$ then find the measure of x , y and z respectively.

- (A) 105° , 75° and 75°
 (B) 115° , 65° and 65°
 (C) 100° , 105° and 75°
 (D) 95° , 85° and 75°

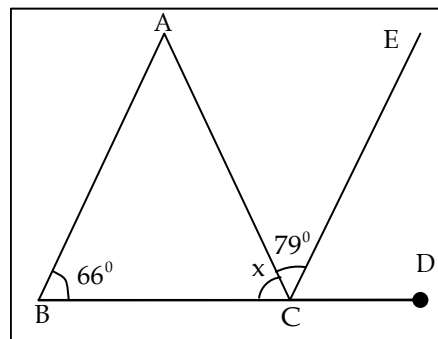


1. A

Sol. Lines m and n are parallel. Lines k and l are transversal.
 Angle x and angle 105° are corresponding angles. $\angle x = 105^\circ$
 Angle y and angle 75° are corresponding angles. $\angle y = 75^\circ$
 Angle z and angle 75° are vertically opposite angles. $\angle z = 75^\circ$
 Hence, the measures of $\angle x$, $\angle y$ and $\angle z$ are 105° , 75° and 75° respectively.

2. In the given figure, AB is parallel to CE . Find the measure of angle x .

- (A) 105° (B) 55°
 (C) 35° (D) 70°



2. C

Sol. Given that, AB is parallel to CE . $\angle ECD$ and $\angle ABC$ are corresponding angles.

$$\angle ECD = 66^\circ$$

Now, BCD is a straight line.

$$\angle ACB + \angle ECD + \angle ACE = 180^\circ$$

$$x + 66^\circ + 79^\circ = 180^\circ$$

$$x + 145^\circ = 180^\circ$$

$$x = 180^\circ - 145^\circ$$

$$x = 35^\circ$$

Hence, the measure of angle x is 35° .

3. What will be the measure of the complement of an angle x , which is less than 45° (i.e. $x < 45^\circ$) ?

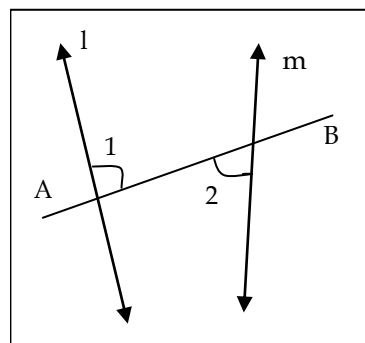
- (A) Greater than 90° (B) Greater than 45°
 (C) Equal to 45° (D) equal to 90°

3. B

Sol. Greater than 45°

4. Two lines l and m are cut by a transversal AB . Name the pair of angles $\angle 1$ and $\angle 2$ in the given figure.

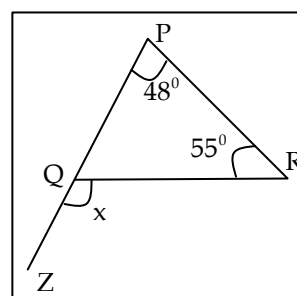
- (A) Corresponding angles
- (B) Alternate interior angles
- (C) Alternative Exterior angles
- (D) vertically opposite angles



4. B
Sol. Alternate interior angles

5. Consider the following triangle. Find the measure of angle ZQR .

- (A) 103°
- (B) 125°
- (C) 132°
- (D) 77°



5. A
Sol. In a triangle, the measure of an exterior angle is equal to the sum of the measures of its interior opposite angles.

$$\begin{aligned} \angle ZQR &= \angle P + \angle R \\ &= 48^\circ + 55^\circ \\ &= 103^\circ \end{aligned}$$

Hence, the measure of angle ZQR is 103°

6. A triangle having all exterior angles same is called
(A) scalene triangle (B) Equilateral triangle
(C) Isosceles triangle (D) Right triangle

6. B
Sol. Equilateral triangle

7. The two exterior angles of a triangle are 70° and 140° . The three angles of a triangle are
(A) $40^\circ, 40^\circ$ and 100° (B) $140^\circ, 25^\circ$ and 15°
(C) $30^\circ, 40^\circ$ and 110° (D) $70^\circ, 45^\circ$ and 65°

7. C
Sol. $30^\circ, 40^\circ$ and 110° (Using linear pair and angle sum property of triangle)

8. In a triangle the exterior angle and adjacent interior angle is a pair of
(A) Complementary angles
(B) Supplementary angles
(C) Either complementary angle or supplementary angle
(D) Neither complementary nor supplementary

8. B
Sol. Supplementary angles

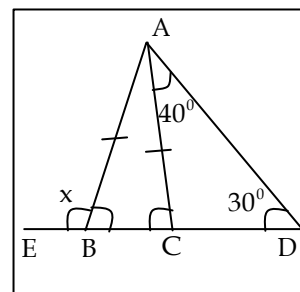
9. The three angles of a triangle are in the ratio 1 : 2 : 3. Find all the angles of the triangle.
(A) $35^\circ, 70^\circ$ and 105° (B) $30^\circ, 60^\circ$ and 90°
(C) $50^\circ, 100^\circ$ and 150° (D) $30^\circ, 60^\circ$ and 80°

9. B
Sol. Let angles be $x, 2x$ and $3x$
 $\therefore x + 2x + 3x = 180^\circ$
 $\therefore x = 30^\circ$
 \therefore Angles are $30^\circ, 60^\circ$ and 90°

10. A triangle in which two altitudes of the triangle are two of its sides is called
(A) Acute – angled triangle (B) Obtuse – angled triangle
(C) Right – angled triangle (D) Equiangular triangle

10. C
Sol. A triangle in which two altitudes of the triangle are two of its sides is called a right – angled triangle.

11. In the given figure, ABC is an isosceles triangle with $AB = AC$. Find the measure of exterior angle $\angle ABE$.
(A) 40° (B) 70°
(C) 100° (D) 110°



11. D
Sol. $\angle ACB$ is exterior angle for triangle ACD
 $\therefore \angle ACB = 40^\circ + 30^\circ = 70^\circ$
 $\therefore \angle ABC = \angle ACB = 70^\circ$
 $\therefore x = 110^\circ$ (Linear Pair)

12. In $\triangle ABC$ and $\triangle DCB$, $AB = CD$ and $AC = BD$. Which of these is true?
(A) $\angle A = \angle D$ (B) $\angle A > \angle D$
(C) $\angle A < \angle D$ (D) $\angle A = \angle B$

12. A
Sol. Given that, $AB = CD$ and $AC = BD$
In $\triangle ABC$ and $\triangle DCB$,
 $AB = CD$
 $AC = BD$
BC common side
Therefore, $\triangle ABC \cong \triangle DCB$, by SSS congruency rule.
Hence, $\angle A = \angle D$, by corresponding parts of congruent triangles.

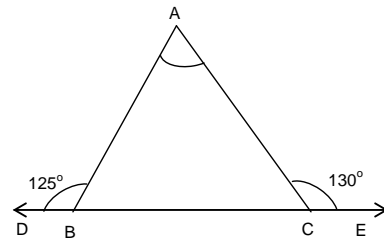
13. If $\triangle XYZ \cong \triangle PQR$ and $\triangle XYZ$ is not congruent to $\triangle RPQ$, then which of the given statements is not true?
 (A) $XY = PQ$ (B) $XY = RP$
 (C) $YZ = QR$ (D) $XZ = PR$

13. B
 Sol. Since $\triangle XYZ \cong \triangle PQR$
 $\therefore XY \neq RP$

14. If in $\triangle ABC$ and $\triangle PQR$, $BC = PQ$, $\angle C = \angle P$ and $\angle A = \angle R$, then which of these is correct?
 (A) $\triangle BCA \cong \triangle PQR$ (B) $\triangle ABC \cong \triangle PQR$
 (C) $\triangle BCA \cong \triangle QPR$ (D) $\triangle ABC \cong \triangle QPR$

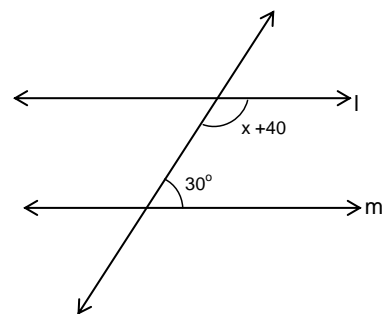
14. C
 Sol. By AAS

15. In the given figure $\angle BAC = ?$
 (A) 65° (B) 75°
 (C) 80° (D) 55°



15. B
 Sol. Since $\angle B = 180^\circ - 125^\circ = 55^\circ$ (Linear Pair)
 and $\angle C = 180^\circ - 130^\circ = 50^\circ$ (Linear Pair)
 $\therefore \angle BAC = 180^\circ - 50^\circ - 55^\circ = 75^\circ$ (Angle sum property of triangle)

16. In the given figure, if $\ell \parallel m$ then $x = ?$
 (A) 10° (B) 140°
 (C) 110° (D) 100°



16. C
 Sol. Since $\ell \parallel m$
 $\therefore x + 40^\circ + 30^\circ = 180^\circ$ (Co – interior angles)
 $\therefore x = 110^\circ$

17. Point of concurrency of altitudes in a triangle is called _____
 (A) orthocenter (B) incentre
 (C) circum – centre (D) centroid

17. A
 Sol. Orthocenter

18. Two equilateral triangles are congruent if
 (A) their sides are equal (B) their angles are equal
 (C) their sides are proportional (D) their areas are proportional

18. A
 Sol. Congruency of triangles.

19. The sum of all angles around a point is
 (A) 90° (B) 180°
 (C) 360° (D) none of these

19. C
 Sol. 360°

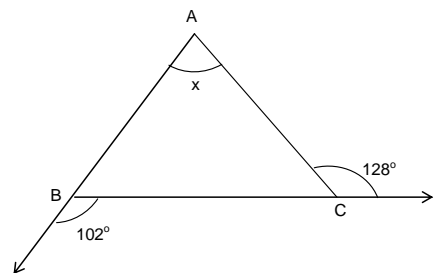
20. Which of the following is a Pythagorean triplet?
 (A) 9, 40, 41 (B) 6, 7, 10
 (C) 8, 10, 12 (D) 11, 5, 13

20. A
 Sol. $9^2 + 40^2 = 41^2$

21. The number of independent measurements required to construct a triangle is
 (A) 2 (B) 3
 (C) 4 (D) 5

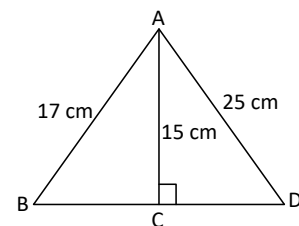
21. B
 Sol. Number of independent measurements is 3.

22. In the given figure find the value of $\frac{x}{2}$
 (A) 15° (B) 25°
 (C) 35° (D) 45°



22. B
 Sol. Since $\angle ABC = 180^\circ - 102^\circ = 78^\circ$ (Linear Pair)
 And $\angle ACB = 180^\circ - 128^\circ = 52^\circ$ (Linear Pair)
 $\therefore x = 180^\circ - 78^\circ - 52^\circ = 50^\circ$ (Angle Sum Property of Triangle)
 $\therefore \frac{x}{2} = 25^\circ$

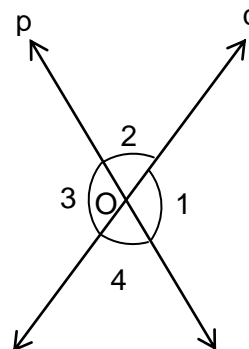
23. In the figure, $\angle ACD = 90^\circ$. If $AD = 25$ cm, $AB = 17$ cm and $AC = 15$ cm then $BD =$ _____
 (A) 36 cm
 (B) 28 cm
 (C) 21 cm
 (D) none of these



23. B

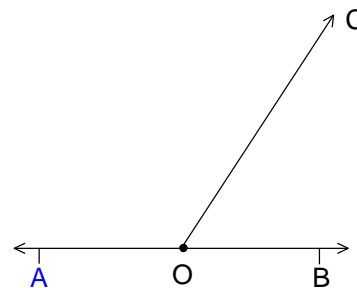
Sol. By Pythagoras theorem,
 In triangle ACD, $CD^2 = 625 - 225 = 400$
 $\Rightarrow CD = 20$
 In triangle ACB, $BC^2 = 289 - 225$
 $BC^2 = 64$
 $\Rightarrow BC = 8$
 $\therefore BD = 20 + 8 = 28 \text{ cm}$

24. In the given figure 'p' and 'q' are two straight lines intersecting each other. The bisectors of $\angle 1$ and $\angle 3$ are OL and OM respectively. Which of them is a true statement?
 (A) L, O, M are collinear
 (B) L, M, O are non-collinear
 (C) LO and MO are perpendicular
 (D) none of these



24. A
 Sol. $\angle LOM = 180^\circ$
 \therefore L, O, M are collinear points.

25. Ray \overline{OC} stands on a line \overline{AB} such that adjacent-angles are one third and half of a constant 'K'. Find the value of K.
 (A) 256° (B) 220°
 (C) 216° (D) none of these



25. C
 Sol. $\frac{k}{3} + \frac{k}{2} = 180^\circ$ [linear pair]
 $\therefore k = 216^\circ$

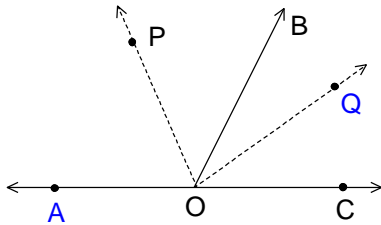
26. The complement and supplement of an angle are such that the complement is $\frac{5}{14}$ times its supplement. The angle is
 (A) 40° (B) 60°
 (C) 70° (D) none of these

26. A
 Sol. $90 - x = \frac{5}{14}(180 - x)$ (Let angle be x)
 $\therefore x = 40^\circ$

27. The angle formed by the bisectors of a linear pair of angles is
 (A) right-angle (B) acute angle
 (C) obtuse angle (D) reflex angle

27. A

Sol. $\angle AOB + \angle BOC = 180^\circ$



$$\Rightarrow \frac{1}{2}\angle AOB + \frac{1}{2}\angle BOC = 90^\circ$$

$$\Rightarrow \angle POB + \angle BOQ = 90^\circ$$

$$\Rightarrow \angle POQ = 90^\circ$$

28. Which of the following is a correct statement about a triangle

- (A) a triangle has two right angles
- (B) a triangle has two obtuse angles
- (C) a triangle has two supplementary angles
- (D) sum of one third of each-angle is 60°

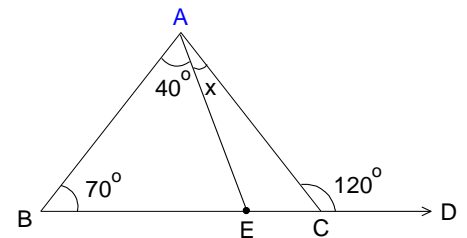
28. D

Sol. $\angle A + \angle B + \angle C = 180^\circ$

$$\Rightarrow \frac{1}{3}\angle A + \frac{1}{3}\angle B + \frac{1}{3}\angle C = 60^\circ$$

29. From the given figure find the complement of 'x'

- (A) 80°
- (B) 10°
- (C) 120°
- (D) none of these



29. A

Sol. $120^\circ = 70^\circ + 40^\circ + x$ (exterior angle property)

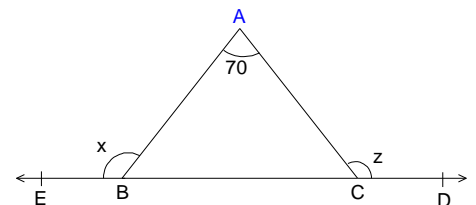
$$120^\circ - 110^\circ = x$$

$$\Rightarrow 120^\circ = 110^\circ + x \Rightarrow 10 = x$$

$$\therefore \text{Complementary of } x = 80^\circ$$

30. In the given figure, find the measure of $(x + z)$

- (A) 225°
- (B) 250°
- (C) 300°
- (D) none of these



30. B

Sol. $70^\circ + (180^\circ - x) + (180^\circ - z) = 180^\circ$ (Angle sum property of triangle)

$$\therefore (x + z) = 250^\circ$$

31. For a triangle ABC, $\angle A = 2\angle B = 3\angle C$, then name the type of triangle ABC is

- (A) right-angled triangle
- (B) acute angled triangle
- (C) obtuse angled triangle
- (D) none of these

31. C

Sol. $\angle A = 2\angle B = 3\angle C = k$

$$\angle A = k$$

$$\angle B = \frac{k}{2}$$

$$\angle C = \frac{k}{3}$$

$$\angle A + \angle B + \angle C = 180$$

$$\Rightarrow k + \frac{k}{2} + \frac{k}{3} = 180$$

$$\therefore k = \frac{1080}{11}$$

32. The sides of a triangle are consecutive positive integers such that the sum of squares of the two is equal to the square of the third. The area of the triangle is

(A) 12 sq. units

(B) 8 sq. units

(C) 6 sq. units

(D) none of these

32. C

Sol. $x^2 + (x+1)^2 = (x+2)^2$ [Pythagoras theorem]

$$\Rightarrow x = 3$$

$$\text{Area} = \frac{1}{2} \times 4 \times 3 = 6 \text{ sq. cm}$$

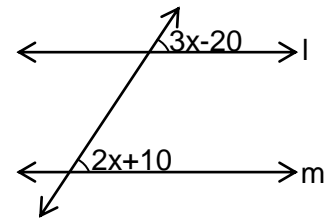
33. If $l \parallel m$ then x equals

(A) 60°

(B) 30°

(C) 20°

(D) none of these



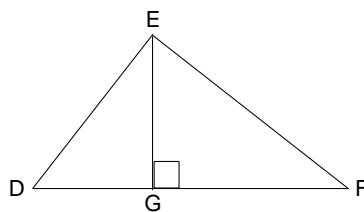
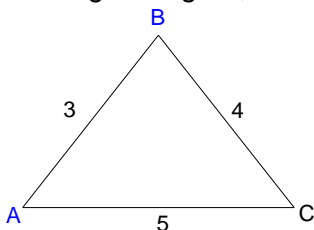
33. B

Sol. Since $l \parallel m$

$$\therefore 3x - 20^\circ = 2x + 10^\circ$$

$$\Rightarrow x = 30^\circ$$

34. In the given figure, $\triangle ABC \cong \triangle DEF$, find EG



(A) $\frac{13}{5}$

(B) $\frac{12}{5}$

(C) $\frac{16}{5}$

(D) none of these

34. B

Sol. $3^2 + 4^2 = 5^2$

\therefore ABC is a right angled triangle

Now $\text{ar}(\triangle ABC) = \text{ar}(\triangle DEF)$

$$\frac{1}{2} \times 3 \times 4 = \frac{1}{2} \times DF \times EG$$

$$12 = 5 \times EG$$

$$\therefore EG = \frac{12}{5}$$

35. The product of additive inverse of '-a' and multiplicative inverse of '-a' is
 (A) 1 (B) -1
 (C) a (D) $\frac{1}{a}$

35. B

Sol. Additive inverse of (-a) is 'a'

Multiplicative inverse of -a is $\left(\frac{-1}{a}\right)$

$$\therefore (a) \times \left(\frac{-1}{a}\right) = -1$$

36. Which of the following is correct
 (A) integers are closed under multiplication
 (B) the integer 0 is the identity under multiplication
 (C) division is associative for integers
 (D) subtraction is commutative for integers

36. A

Sol. Properties of integers.

37. The median for first 10 natural numbers are
 (A) 5 (B) 5.5
 (C) 4.5 (D) 6

37. B

Sol. Median = $\frac{\frac{n}{2}\text{th observation} + \left(\frac{n}{2} + 1\right)\text{th observation}}{2}$

$$\therefore \text{Median} = \frac{5 + 6}{2} = 5.5$$

When 'n' is odd

38. (Mode + Median) of the data: 13, 16, 12, 14, 19, 12, 14, 13, 14 is
 (A) 28 (B) 30
 (C) 36 (D) none of these

38. A

Sol. Mode = 14 and Median = 14

$$\therefore \text{Median} + \text{Mode} = 28$$

39. Two coins are tossed simultaneously. Find the probability of getting the same faces

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

(B) $\frac{1}{4}$

(C) $\frac{1}{2}$

(D) none of these

39. C

Sol. Possible outcomes are {TT, HH, HT, TH}
Favourable Outcomes are {HH, TT}

$$\therefore \text{Probability} = \frac{2}{4} = \frac{1}{2}$$

40. A teacher has 45 chocolates. After giving two chocolates to each student, teacher is left with 7 chocolates. How many students are there in the class?

(A) 20

(B) 19

(C) 25

(D) none of these

40. B

Sol. Let x be the number of students in the class

$$\Rightarrow 2x + 7 = 45$$

$$\therefore x = 19$$

41. The denominator of a fraction is 2 more than its numerator. If 2 is added to both numerator and denominator, then we get $\frac{3}{5}$. The required fraction is _____

(A) $\frac{1}{3}$

(B) $\frac{5}{7}$

(C) $\frac{7}{9}$

(D) $\frac{9}{11}$

41. A

Sol. Let fraction be $\frac{x}{x+2}$

$$\therefore \frac{x+2}{x+4} = \frac{3}{5}$$

$$\Rightarrow 5x + 10 = 3x + 12$$

$$\Rightarrow 5x - 3x = 12 - 10$$

$$\Rightarrow 2x = 2$$

$$\Rightarrow x = 1$$

$$\therefore \text{Required fraction} = \frac{x}{x+2} = \frac{1}{1+2} = \frac{1}{3}$$

42. The mixed fraction of the product $\frac{13}{11} \times 6$ is

- (A) $7\frac{4}{11}$ (B) $7\frac{2}{12}$
 (C) $4\frac{1}{11}$ (D) $7\frac{1}{11}$

42. D

Sol. $\frac{13}{11} \times 6 \Rightarrow \frac{13}{11} \times 6 = \frac{78}{11}$

Thus mixed fraction of product $\frac{78}{11}$ is $7\frac{1}{11}$.

43. Find the value of $|-3 - 7|$?

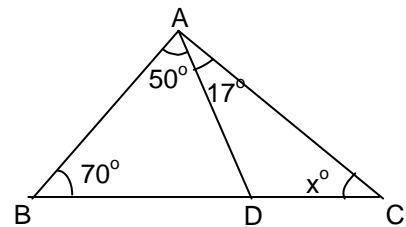
- (A) 4 (B) 10
 (C) -4 (D) -10

43. B

Sol. $|-3 - 7| = |-10| = 10$

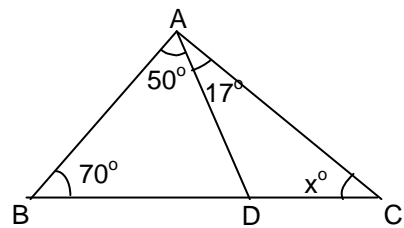
44. Find the measure of angle x in the given figure.

- (A) 45° (B) 40°
 (C) 43° (D) 47°

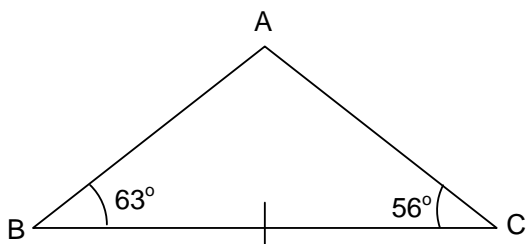


44. C

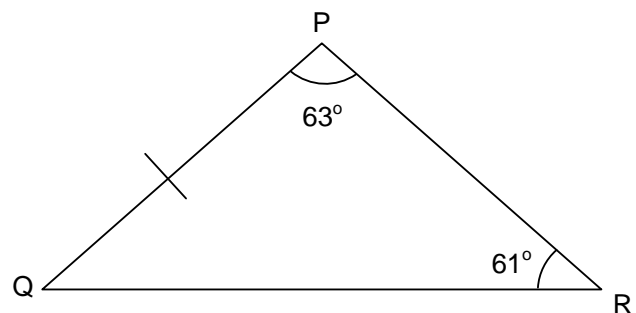
Sol. $\Rightarrow \angle ADC = \angle ABD + \angle BAD$ (exterior angle = sum of opposite interior angles)
 $= 70^\circ + 50^\circ$
 $\angle ADC = 120^\circ$
 $x + 17^\circ + 120^\circ = 180^\circ$
 $x = 43^\circ$ [Sum of angles of triangles]



45. In $\triangle ABC$ and $\triangle PQR$, if $BC = PQ$, then name the two triangles which are congruent to each other.



- (A) $\triangle BCA \cong \triangle PQR$
 (C) $\triangle BCA \cong \triangle RQP$



- (B) $\triangle ACB \cong \triangle PQR$
 (D) $\triangle BCA \cong \triangle QPR$

45. A

Sol. In $\triangle BCA$ and $\triangle PQR$

$$\angle ABC = \angle RPQ = 63^\circ$$

$$BC = PQ$$

$$\text{and } \angle BAC = \angle PRQ$$

 \therefore By ASA criteria

$$\triangle BCA \cong \triangle PQR$$

(given)

(given)

$$[\because \text{In } \triangle PQR, \angle Q = 180^\circ - (63^\circ + 61^\circ) = 56^\circ]$$

SECTION – II PHYSICS

1. Which of the following is a vector quantity?
 (A) Speed (B) Distance
 (C) Displacement (D) Mass
1. C
 Sol. Displacement is vector quantity.
2. Cyclones have a _____ pressure area surrounded by a _____ pressure area.
 (A) high, low (B) low, high
 (C) high, equal (D) none of these
2. B
 Sol. Cyclones are created when centre of low pressure develops with a system of high pressure surrounding it.
3. A body starts from rest and moves with a constant acceleration of 2 m/s^2 for 5 second. Then the velocity after 5 second is.
 (A) $\frac{5}{4} \text{ m/s}$ (B) 16 m/s
 (C) 10 m/s (D) none of these
3. C
 Sol. $v = u + at$
 $v = 0 + 2 \times 5 = 10 \text{ m/s}$.
4. Simple pendulum was invented by:
 (A) William Harvey (B) Edison
 (C) Galileo Galilei (D) Isaac Newton
4. C
 Sol. Simple pendulum was invented by Galileo Galilei.
5. Tip of a second clock moves in:
 (A) Linear motion (B) Oscillatory motion
 (C) Circular motion (D) None of these
5. C
 Sol. Tip of a second clock moves in circular motion.
6. Total distance traveled by a moving body never be zero but total displacement:
 (A) Never be zero (B) May be zero
 (C) Always greater than zero (D) Always zero
6. B
 Sol. Total distance traveled by a moving body never be zero but total displacement may be zero.
7. Average speed is equal to:
 (A) Total speed / total time (B) Velocity / time
 (C) Distance traveled / hour (D) Total distance traveled / total time taken
7. D
 Sol. Average speed = total distance traveled / total time taken

8. A car traveled 54 km in 30 minute, the average speed of the car is:
 (A) 54 km/hrs (B) 108 km/hrs
 (C) 38 km/hrs (D) 27 km/hrs

8. B

Sol. Average speed = $\frac{54}{0.5} = 108 \text{ km/h}$

9. The time taken by earth to complete one revolution around the sun is called:
 (A) One year (B) Half month
 (C) One month (D) One decade

9. A

Sol. The time taken by earth to complete one revolution around the sun is called one year.

10. A particle complete two round on a circular track of radius R. Displacement & distance travelled are:
 (A) zero, zero (B) zero, $4\pi R$
 (C) $2\pi R$, zero (D) $2\pi R$, $2\pi R$

10. B

Sol. distance $\rightarrow 4\pi R$
 displacement \rightarrow zero

11. A particle travels 100 km along a curved path. Its displacement will be:
 (A) Equal to 100 km (B) Greater than 100 km
 (C) Less than 100 km (D) None of these

11. C

Sol. Displacement is the shortest straight line path between initial & final position.

12. The value of absolute zero temperature is:
 (A) -273°C (B) 273°F
 (C) -273°K (D) 273°K

12. A

Sol. The value of absolute zero temperature is -273°C .

13. The quantity of heat required to raise the temperature of one gram of a substance through 1°C
 (A) latent heat (B) electric heat
 (C) specific heat (D) all of the above

13. C

Sol. The quantity of heat required to raise the temperature of one gram of a substance through 1°C is called specific heat.

14. A body covered a distance of 5 m along a semicircular path. The ratio of distance to displacement is
 (A) 11 : 7 (B) 12 : 5
 (C) 5 : 12 (D) 7 : 11

14. A

Sol. $\frac{\text{distance}}{\text{displacement}} = \frac{\pi r}{2r} = \frac{11}{7}$

Where r is radius.

15. A person travelling on a straight line moves with a uniform velocity v_1 for some time and with uniform velocity v_2 for the next equal time. The average velocity v is given by

(A) $v = \frac{v_1 + v_2}{2}$

(B) $v = \sqrt{v_1 v_2}$

(C) $\frac{2}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

(D) $\frac{1}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

15. A

Sol. $x_1 = v_1 \times t$; $x_2 = v_2 \times t$

$$\text{Average velocity} = \frac{\text{Total distance}}{\text{Total time}}$$

$$= \frac{x_1 + x_2}{2t} = \left(\frac{v_1 + v_2}{2} \right)$$

**SECTION – III
CHEMISTRY**

1. Which of the following does not take place in a physical change?
(A) change of physical state (B) change of size
(C) change of shape (D) formation of new compound
1. D
Sol. Formation of new compound does not take place in a physical change.
2. Which is a chemical change?
(A) Heating of dry ice(solid CO_2) to CO_2 gas.
(B) Dissolution of sugar in water.
(C) Electrolysis of H_2O into for O_2 & H_2 .
(D) Sublimation of iodine solid to its vapour.
2. C
Sol. Electrolysis of H_2O into for O_2 & H_2 is a chemical change.
3. Which of the following is a chemical change?
(A) Cutting of wood (B) Polishing wood by sand paper
(C) Burning of wood (D) None of these
3. C
Sol. Burning of wood is a chemical change.
4. Which of the following change is called melting?
(A) Change of solid camphor into its vapour by heating
(B) Change of sugar into its aqueous solution
(C) Change of ammonia into nitrogen and hydrogen by heating
(D) Change of iron into its red hot liquid iron
4. D
Sol. Change of iron into its red hot liquid iron is called melting.
5. Which of the following process causes cooling?
(A) Condensation (B) Boiling of water
(C) Evaporation of water (D) Melting of sugar
5. C
Sol. Evaporation of water causes cooling.
6. Melting of ice is a
(A) physical change (B) chemical change
(C) both physical & chemical (D) no change
6. A
Sol. Melting of ice is a physical change.
7. Substances used to give chemical reaction are called
(A) reactants (B) products
(C) Catalyst (D) apparatus
7. A
Sol. Substances used to give chemical reaction are called reactants.

8. Which of the following is a chemical change?
(A) Melting of ice (B) Ripening of fruits
(C) Sublimation of dry ice (D) Evaporation

8. B
Sol. Ripening of fruits is a chemical change.

9. Which of the following represents a mixture?
(A) Water (B) Air
(C) Sugar (D) Oxygen

9. B
Sol. Air represents a mixture.

10. Which of the following is a compound?
(A) Potassium (B) Copper sulphate
(C) Aluminium (D) Nitrogen

10. B
Sol. Copper sulphate is a compound.

11. Conversion of elements into compounds is a
(A) Physical Change (B) Always reversible
(C) Chemical Change (D) Can't be decided

11. C
Sol. Elements reacts with other reactants or compounds to form compounds.

12. An ozone molecule consists of _____ oxygen atoms.
(A) one (B) two
(C) three (D) four

12. C
Sol. An ozone molecule consists of three oxygen atoms.

13. Example of heterogenous solution is
(A) sugar solution (B) salt solution
(C) solution of sand & water (D) both (A)& (b)

13. C
Sol. Solution of sand & water is heterogenous solution.

14. Which of the following statements represent a physical change?
(A) burning of paper (B) growth of a plant
(C) mixing copper sulphate in water (D) rotting of fruit

14. C
Sol. Dissolution of copper sulphate represent a physical change.

15. Magnesium hydroxide is _____ in nature
(A) acidic (B) basic
(C) neutral (D) none

15. B
Sol. Magnesium hydroxide is basic in nature.

SECTION – IV BIOLOGY

1. Birds breathe through:
(A) lungs (B) kidney
(C) spiracles (D) skin
1. A
Sol. Birds breathe through **lungs**.
2. Sometimes when we do heavy exercise, anaerobic respiration takes place in our muscle cells. What is produced during this process?
(A) alcohol and lactic acid (B) alcohol and CO₂
(C) lactic acid and CO₂ (D) none of the above
2. **C**
Sol. **Lactic acid & CO₂** produced during when we do heavy exercise.
3. Mark the correct statement:
(A) cockroaches, snails and fishes have lungs in their chest cavities
(B) the skin of earthworm feels hard on touching
(C) gills in fish help them to get oxygen dissolved in water
(D) none of these
3. **C**
Sol. Fishes use gills for the exchange of gases. As the water enters through mouth it flows through gills. **Capillaries in the gills absorb oxygen dissolved in water** and also help in expelling out CO₂ from the body.
4. Yeast respire anaerobically to produce:
(A) water (B) alcohol
(C) glucose (D) lactic acid
4. **B**
Sol. Yeast respire anaerobically to produce **alcohol**.
5. The food material used to release energy in body cells, which is considered as a biological fuel is
(A) glucose (B) vitamin
(C) water (D) minerals
5. **A**
Sol. The food material used to release energy in body cells, which is considered as a biological fuel is **glucose**.
6. During exhalation the ribs:
(A) move down and inwards (B) move upwards
(C) move outwards (D) do not move at all
6. **A**
Sol. During exhalation the ribs **move down and inwards**.
7. Name the muscular sheet which separates the abdomen from the chest cavity.
(A) diaphragm (B) ribs
(C) spiracles (D) tracheal

7. **A**
Sol. **Diaphragm** separates the abdomen from the chest cavity.

8. Muscle cramps occur due to accumulation of:
(A) lactic acid (B) acetic acid
(C) alcohol (D) malic acid

8. **A**
Sol. Muscle cramps occur due to accumulation of **lactic acid**.

9. Name the organism that breathes through its lungs as well as its skin:
(A) human being (B) frog
(C) dog (D) earthworm

9. **B**
Sol. **Frog** breathes through its lungs as well as its skin.

10. Fish breathe with the help of gills which are richly supplied with blood vessels, the gills help the fish to
(A) take in oxygen from air (B) take in oxygen dissolved in H₂O
(C) absorb nutrients present in water (D) release waste substances in water

10. **B**
Sol. Fish breathe with the help of gills which are richly supplied with blood vessels, the gills help the **fish to take in oxygen dissolved in H₂O**.

11. Match the following:

Column I	Column II
(a) Stomach	(i) Storage of undigested organic matter
(b) Liver	(ii) Digestion of carbohydrates
(c) Salivary gland	(iii) Site for milk protein digestion
(d) Rectum	(iv) Has alkaline medium
(e) Duodenum	(v) Production of bile pigments

	(a)	(b)	(c)	(d)	(e)
(A)	(i)	(ii)	(iii)	(iv)	(v)
(B)	(ii)	(iv)	(v)	(i)	(iii)
(C)	(ii)	(iii)	(v)	(iv)	(i)
(D)	(iii)	(v)	(ii)	(i)	(iv)

11. **D**
Sol. a – iii, b – v, c – ii, d – i, e – iv

12. In respiration which takes place in the absence of O₂ is called _____.
(A) aerobic respiration (B) anaerobic respiration
(C) both (A) and (B) (D) none of these

12. **B**
Sol. In respiration which takes place in the absence of O₂ is called **anaerobic respiration**.

13. In cockroach, air enters the body through:
(A) lungs (B) gills
(C) spiracles (D) skin

13. **C**

Sol. In cockroach, air enters the body through **spiracles**.

14. Wind pipe is called:
(A) oesophagus (B) trachea
(C) bronchus (D) nasal cavity

14. **B**

Sol. Wind pipe is called **trachea**.

15. Breathing is a process that
(i) provides O₂ to body
(ii) breaks down food to release energy
(iii) helps the body to get rid of CO₂
(iv) produce H₂O in the cells

Which of the following gives the correct combination of functions of breathing?

- (A) (i) and (ii) (B) (ii) and (iii)
(C) (i) and (iii) (D) (ii) and (iv)

15. **C**

Sol. Breathing is a process that provides O₂ to body and helps the body to get rid of CO₂.