

Sample Question Paper-1

(Issued by Board Dated 16th Sep. 2022)

Mathematics-Basic

Class - X

Time Allowed : 3 hours

Maximum Marks : 80

General Instructions :

1. This Question Paper has 5 Sections A, B, C, D, and E.
 2. Section A has 20 Multiple Choice Questions (MCQs) carrying 1 mark each.
 3. Section B has 5 Short Answer-I (SA-I) type questions carrying 2 marks each.
 4. Section C has 6 Short Answer-II (SA-II) type questions carrying 3 marks each.
 5. Section D has 4 Long Answer (LA) type questions carrying 5 marks each.
 6. Section E has 3 Case Based integrated units of assessment (4 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.
 7. All Questions are compulsory. However, an internal choice in 2 Qs of 2 marks, 2 Qs of 3 marks and 2 Questions of 5 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E.
 8. Draw neat figures wherever required. Take $\pi = \frac{22}{7}$ wherever required if not stated.

Section - A

Section A consists of 20 Questions of 1 marks each.

- 1.** If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3b$; a, b being prime numbers, then LCM (p, q) is : 1
(A) ab **(B)** a^2b^2 **(C)** a^3b^2 **(D)** a^3b^3

2. What is the greatest possible speed at which a man can walk 52 km and 91 km in an exact number of hours? 1
(A) 17 km/hours **(B)** 7 km/hours **(C)** 13 km/hours **(D)** 26 km/hours

3. If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is : 1
(A) 10 **(B)** -10 **(C)** 5 **(D)** -5

4. Graphically, the pair of equations given by 1

$$\begin{aligned} 6x - 3y + 10 &= 0 \\ 2x - y + 9 &= 0 \end{aligned}$$

represents two lines which are:

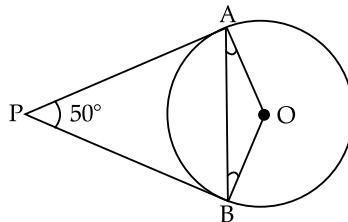
- 7.** If in triangles ABC and DEF , $\frac{AB}{DE} = \frac{BC}{FD}$, then they will be similar, when

(A) $\angle B = \angle E$ (B) $\angle A = \angle D$ (C) $\angle B = \angle D$ (D) $\angle A = \angle F$ 1

- 8.** In which ratio the y -axis divides the line segment joining the points $(5, -6)$ and $(-1, -4)$?

(A) $1 : 5$ (B) $5 : 1$ (C) $1 : 1$ (D) $1 : 2$ 1

- 9.** In the figure, if PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$, then $\angle OAB$ is equal to



(A) 25° (B) 30° (C) 40° (D) 50° 1

- 10.** If $\sin A = \frac{1}{2}$, then the value of $\sec A$ is :

(A) $\frac{2}{\sqrt{3}}$ (B) $\frac{1}{\sqrt{3}}$ (C) $\sqrt{3}$ (D) 1 1

- 11.** $\sqrt{3} \cos^2 A + \sqrt{3} \sin^2 A$ is equal to:

(A) 1 (B) $\frac{1}{\sqrt{3}}$ (C) $\sqrt{3}$ (D) 0 1

- 12.** The value of $\cos 1^\circ \cos 2^\circ \cos 3^\circ \cos 4^\circ \dots \cos 90^\circ$ is

(A) 1 (B) 0 (C) -1 (D) 2 1

- 13.** If the perimeter of a circle is equal to that of a square, then the ratio of their areas is :

(A) $22 : 7$ (B) $14 : 11$ (C) $7 : 22$ (D) $11 : 14$ 1

- 14.** If the radii of two circles are in the ratio of $4 : 3$, then their areas are in the ratio of

(A) $4 : 3$ (B) $8 : 3$ (C) $16 : 9$ (D) $9 : 16$ 1

- 15.** The total surface area of a solid hemisphere of radius 7 cm is :

(A) $447\pi \text{ cm}^2$ (B) $239\pi \text{ cm}^2$ (C) $174\pi \text{ cm}^2$ (D) $147\pi \text{ cm}^2$ 1

- 16.** For the following distribution :

Class	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Frequency	10	15	12	20	9

the upper limit of the modal class is :

(A) 10 (B) 15 (C) 20 (D) 25 1

- 17.** If the mean of the following distribution is 2.6, then the value of y is :

Variable (x)	1	2	3	4	5
Frequency	4	5	y	1	2

(A) 3 (B) 8 (C) 13 (D) 24 1

- 18.** A card is selected at random from a well shuffled deck of 52 cards. The probability of its being a red face card is :

(A) $\frac{3}{26}$ (B) $\frac{3}{13}$ (C) $\frac{2}{13}$ (D) $\frac{1}{2}$ 1

Direction for questions 19 & 20: In question numbers 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

- (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
- (C) Assertion (A) is true but Reason (R) is false.
- (D) Assertion (A) is false but Reason (R) is true.

19. Assertion (A): If HCF of 510 and 92 is 2, then the LCM of 510 and 92 is 32460.

Reason (R): As $\text{HCF}(a, b) \times \text{LCM}(a, b) = a \times b$

1

20. Assertion (A): The ratio in which the line segment joining (2, -3) and (5, 6) internally divided by x axis is 1 : 2.

Reason (R): As formula for the internal division is $\left(\frac{mx_2 + nx_1}{m+n}, \frac{my_2 + ny_1}{m+n} \right)$.

1

Section - B

Section B consists of 5 Questions of 2 marks each.

21. For what values of k will the following pair of linear equations have infinitely many solutions?

$$kx + 3y - (k - 3) = 0$$

$$12x + ky - k = 0$$

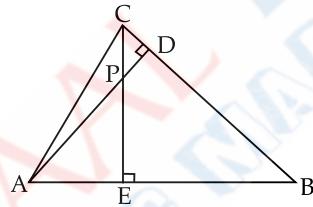
2

22. In the figure, altitudes AD and CE of $\triangle ABC$ intersect each other at the point P . Show that:

(i) $\triangle ABD \sim \triangle CBE$

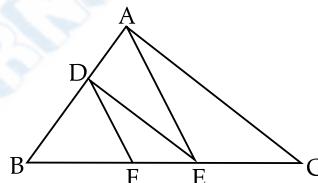
(ii) $\triangle PDC \sim \triangle BEC$

2



OR

In the figure, $DE \parallel AC$ and $DF \parallel AE$. Prove that $\frac{BF}{FE} = \frac{BF}{EC}$.



23. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.

2

24. If $\cot \theta = \frac{7}{8}$, evaluate: $\frac{(1 + \sin \theta)(1 - \sin \theta)}{(1 + \cos \theta)(1 - \cos \theta)}$

2

25. Find the perimeter of a quadrant of a circle of radius 14 cm.

2

OR

Find the diameter of a circle whose area is equal to the sum of the areas of the two circles of radii 24 cm and 7 cm.

Section - C

Section C consists of 6 Questions of 3 marks each.

26. Prove that $\sqrt{5}$ is an irrational number.

3

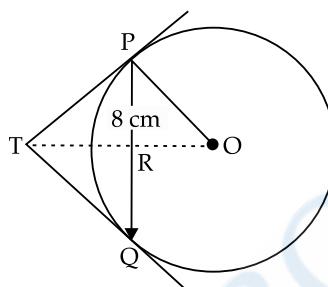
27. Find the zeroes of the quadratic polynomial $6x^2 - 3 - 7x$ and verify the relationship between the zeroes and the coefficients. 3

28. A shopkeeper gives books on rent for reading. She takes a fixed charge for the first two days, and an additional charge for each day thereafter. Latika paid ₹ 22 for a book kept for six days, while Anand paid ₹ 16 for the book kept for four days. Find the fixed charges and the charge for each extra day. 3

OR

Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. What are the speeds of the two cars?

29. In the figure, PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at a point T . Find the length TP . 3



30. Prove that: $\frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta} = 1 + \sec \theta \cosec \theta$ 3

OR

If $\sin \theta + \cos \theta = \sqrt{3}$, then prove that $\tan \theta + \cot \theta = 1$.

31. Two dice are thrown at the same time. What is the probability that the sum of the two numbers appearing on the top of the dice is

(i) 8? 3

(ii) 13? 3

(iii) less than or equal to 12? 3

Section - D

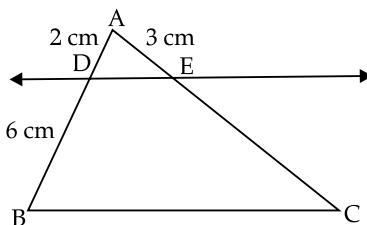
Section D consists of 4 Questions of 5 marks each.

32. An express train takes 1 hour less than a passenger train to travel 132 km between Mysore and Bangalore (without taking into consideration the time they stop at intermediate stations). If the average speed of the express train is 11 km/h more than that of the passenger train, find the average speed of the two trains. 5

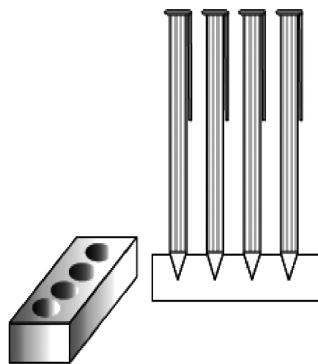
OR

A motor boat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.

33. Prove that if a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio. In the figure, find EC if $\frac{AD}{DB} = \frac{AE}{EC}$ using the above theorem. 5

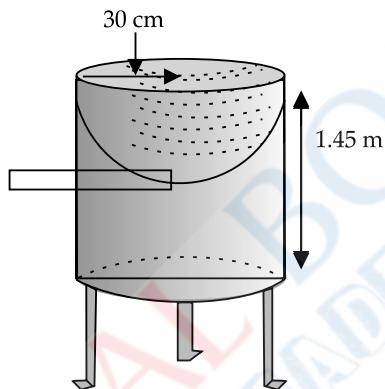


34. A pen stand made of wood is in the shape of a cuboid with four conical depressions to hold pens. The dimensions of the cuboid are 15 cm by 10 cm by 3.5 cm. The radius of each of the depressions is 0.5 cm and the depth is 1.4 cm. Find the volume of wood in the entire stand. 5



OR

Ramesh made a bird-bath for his garden in the shape of a cylinder with a hemispherical depression at one end. The height of the cylinder is 1.45 m and its radius is 30 cm. Find the total surface area of the bird-bath.



- 35.** A life insurance agent found the following data for distribution of ages of 100 policy holders. Calculate the median age, if policies are given only to persons having age 18 years onwards but less than 60 years. 5

Age (in years)	Number of policy holders
Below 20	2
20 – 25	4
25 – 30	18
30 – 35	21
35 – 40	33
40 – 45	11
45 – 50	3
50 – 55	6
55 – 60	2

Section - E

Case study based questions are compulsory.

Case Study-1

- 36.** In the month of April to June 2022, the exports of passenger cars from India increased by 26% in the corresponding quarter of 2021–22, as per a report. A car manufacturing company planned to produce 1800 cars in 4th year and 2600 cars in 8th year. Assuming that the production increases uniformly by a fixed number every year.



Based on the above information answer the following questions.

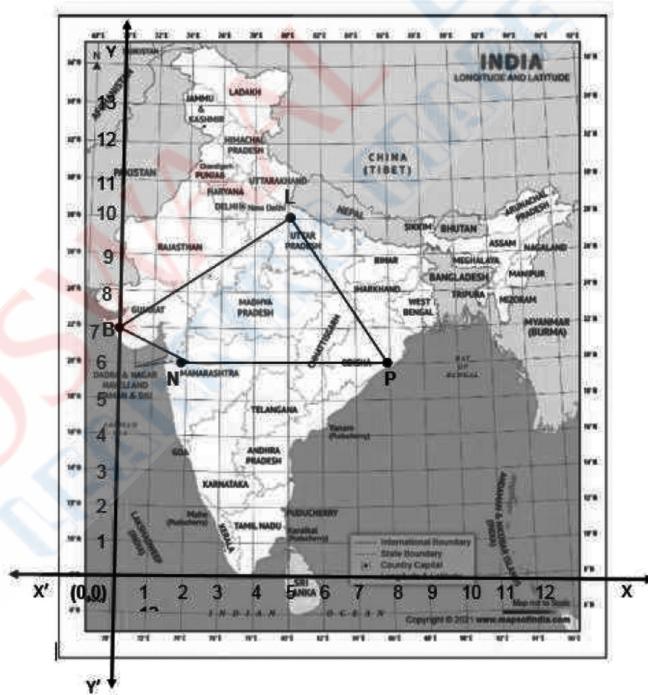
- I. Find the production in the 1st year. 1
- II. Find the production in the 12th year. 1
- III. Find the total production in first 10 years. 2

OR

In which year the total production will reach to 31200 cars?

Case Study-2

- 37.** In a GPS, the lines that run east-west are known as lines of latitude, and the lines running north-south are known as lines of longitude. The latitude and the longitude of a place are its coordinates and the distance formula is used to find the distance between two places. The distance between two parallel lines is approximately 150 km. A family from Uttar Pradesh planned a round trip from Lucknow (L) to Puri (P) via Bhuj (B) and Nashik (N) as shown in the given figure below.



Based on the above information answer the following questions using the coordinate geometry.

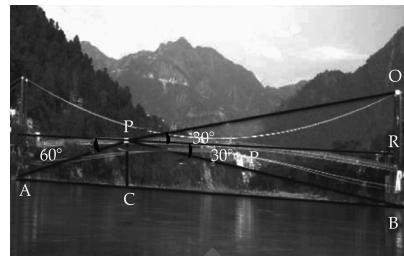
- I. Find the distance between Lucknow (L) to Bhuj(B). 1
- II. If Kota (K), internally divide the line segment joining Lucknow (L) to Bhuj (B) into 3 : 2, then find the coordinate of Kota (K). 1
- III. Name the type of triangle formed by the places Lucknow (L), Nashik (N) and Puri (P) 2

OR

Find a place (point) on the longitude (y-axis) which is equidistant from the points Lucknow (L) and Puri (P).

Case Study-3

- 38.** Lakshman Jhula is located 5 kilometers north-east of the city of Rishikesh in the Indian state of Uttarakhand. The bridge connects the villages of Tapovan to Jonk. Tapovan is in Tehri Garhwal district, on the west bank of the river, while Jonk is in Pauri Garhwal district, on the east bank. Lakshman Jhula is a pedestrian bridge also used by motorbikes. It is a landmark of Rishikesh. A group of Class X students visited Rishikesh in Uttarakhand on a trip. They observed from a point (P) on a river bridge that the angles of depression of opposite banks of the river are 60° and 30° respectively. The height of the bridge is about 18 meters from the river. Based on the above information answer the following questions.



- I. Find the distance PA . 1
- II. Find the distance PB 1
- III. Find the width AB of the river. 2

OR

Find the height BQ if the angle of the elevation from P to Q be 30° .



SOLUTIONS

Sample Question Paper-1

(With CBSE Marking Scheme 2022-23)

Mathematics-Basic

Section - A

1. a^3b^2

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (C) is correct.

$$\begin{aligned} \text{Explanation : } & p = ab^2 = a \times b \times b \\ \text{and } & q = a^3 b = a \times a \times a \times b \\ \therefore & \text{L.C.M. } (p, q) = a \times a \times a \times b \times b \\ & = a^3b^2 \end{aligned} \quad 1$$

2. 13 km/hours

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (C) is correct.

$$\begin{aligned} \text{Explanation : Greatest possible speed} &= \text{H.C.F. of given distances in} \\ &\text{an exact number of hours} \\ \therefore & 52 = 2 \times 2 \times 13 \\ \text{and } & 91 = 7 \times 13 \\ \therefore & \text{H.C.F. } (52, 91) = 13 \end{aligned} \quad 1$$

Hence, the greatest possible speed is 13 km/hours.

3. -10

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (B) is correct.

$$\begin{aligned} \text{Explanation : Let } & p(x) = x^2 + 3x + k \\ \therefore & p(2) = (2)^2 + 3(2) + k \\ \because 2 \text{ is a zero of the polynomial } p(x). & p(2) = 0 \\ \therefore & 4 + 6 + k = 0 \\ \text{i.e., } & 10 + k = 0 \\ \Rightarrow & k = -10 \end{aligned} \quad 1$$

4. Parallel.

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (B) is correct.

$$\begin{aligned} \text{Explanation : For equation,} & 6x - 3y + 10 = 0 \\ & 6x - 3y = 0 \end{aligned}$$

$$\text{Comparing with } a_1x + b_1y + c_1 = 0,$$

$$\begin{aligned} \text{we get } & a_1 = 6, \\ & b_1 = -3 \\ & c_1 = 10 \end{aligned}$$

$$\text{and for equation,}$$

$$2x - y + 9 = 0$$

$$\text{Comparing with } a_2x + b_2y + c_2 = 0,$$

$$\text{we get } a_2 = 2,$$

Section - A

$$b_2 = -1$$

and

Here,

$$c_2 = 9.$$

$$\frac{a_1}{a_2} = \frac{6}{2} = 3,$$

$$\frac{b_1}{b_2} = \frac{-3}{-1} = 3$$

and

$$\frac{c_1}{c_2} = \frac{10}{9}$$

∴

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

1

So, the system of linear equations is inconsistent (no solution) and graph will represent a pair of parallel lines.

5. $k = 4$

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (C) is correct.

$$\begin{aligned} \text{Explanation : Given quadratic equation:} & x^2 + 4x + k = 0 \\ & x^2 + 4x = -k \end{aligned}$$

$$\begin{aligned} \text{On comparing with } ax^2 + bx + c = 0, \\ \text{we get } & a = 1, \\ & b = 4 \end{aligned}$$

$$\begin{aligned} & c = k \\ \text{For roots to be equal and real,} & b^2 - 4ac = 0 \end{aligned}$$

$$\Rightarrow (4)^2 - 4 \times 1 \times k = 0$$

$$\Rightarrow 16 - 4k = 0$$

$$\Rightarrow 4k = 16$$

$$\Rightarrow k = 4 \quad 1$$

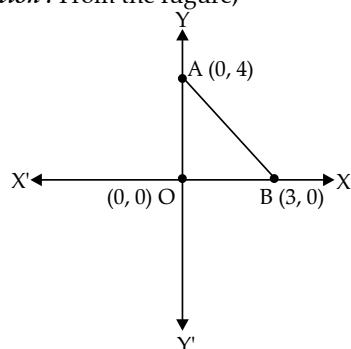
6. 12

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (B) is correct.

Explanation : From the figure,



perimeter of $\triangle OAB$
 $= OA + AB + OB$
 Here, $OA = 4$ units and $OB = 3$ units
 $AB = \sqrt{(3-0)^2 + (0-4)^2}$
 $\quad \quad \quad$ (Using distance formula)
 $\quad \quad \quad = \sqrt{(3)^2 + (-4)^2}$
 $\quad \quad \quad = \sqrt{9+16} = \sqrt{25}$
 $\quad \quad \quad = 5$ units

\therefore Perimeter of triangle $= 4 + 5 + 3 = 12$ units 1

7. $\angle B = \angle D$

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (C) is correct.

Explanation : In $\triangle ABC$ and $\triangle DEF$,

$$\frac{AB}{DE} = \frac{BC}{FD}$$

or, $\frac{AB}{ED} = \frac{BC}{DF}$ 1

To, be similar of $\triangle ABC$ and $\triangle EDF$, we must have $\angle B = \angle D$.

8. 5 : 1

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (B) is correct.

Explanation : Let the required point be $P(0, a)$ and required ratio $AP : PB = k : 1$.

$$\begin{aligned} \therefore 0 &= \frac{k(-1) + 1(5)}{k+1} \\ \Rightarrow -k + 5 &= 0 \\ \Rightarrow k &= 5 \end{aligned}$$

Hence, required ratio is 5 : 1. 1

9. 25°

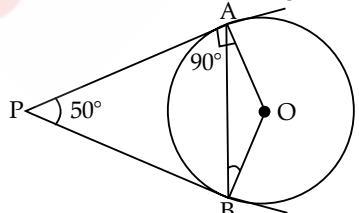
[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (A) is correct.

Explanation : In $\triangle PAB$,

$$PA = PB \text{ (Tangents are equal)}$$



$$\begin{aligned} \therefore \angle PAB &= \angle PBA \quad (\text{Isosceles angle property}) \\ \angle PAB + \angle PBA + \angle APB &= 180^\circ \quad (\text{Angle sum property of a } \triangle) \\ \Rightarrow 2\angle PAB + 50^\circ &= 180^\circ \\ \Rightarrow 2\angle PAB &= 130^\circ \\ \Rightarrow \angle PAB &= 65^\circ \end{aligned}$$

But $\angle PAO = 90^\circ$
 $(OA$ is radius and PA is tangent)
 Now, $\angle OAB = \angle OAP - \angle PAB$
 $= 90^\circ - 65^\circ = 25^\circ$ 1

10. $\frac{2}{\sqrt{3}}$

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (A) is correct.

$$\begin{aligned} \text{Explanation : } \because \sin A &= \frac{1}{2} \\ \Rightarrow \sin A &= \sin 30^\circ \\ \Rightarrow A &= 30^\circ \\ \text{So, } \sec A &= \sec 30^\circ \\ &= \frac{2}{\sqrt{3}} \end{aligned}$$

11. $\sqrt{3}$

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (C) is correct.

$$\begin{aligned} \text{Explanation : } \sqrt{3} \cos^2 A + \sqrt{3} \sin^2 A &= \sqrt{3} (\cos^2 A + \sin^2 A) \\ &= \sqrt{3} \times 1 \\ &= [\because \cos^2 A + \sin^2 A = 1] \\ &= \sqrt{3} \end{aligned}$$

12. 0

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (B) is correct.

$$\begin{aligned} \text{Explanation : } (\cos 1^\circ) \times (\cos 2^\circ) \times (\cos 3^\circ) \times (\cos 4^\circ) &\times \dots \times (\cos 90^\circ) \\ &= (\cos 1^\circ) \times (\cos 2^\circ) \times (\cos 3^\circ) \times (\cos 4^\circ) \times \dots \times (0) \\ &= 0 \quad [\because \cos 90^\circ = 0] \end{aligned}$$

13. 14 : 11

[CBSE Marking Scheme, 2022] 1

Detailed Answer:

Option (B) is correct.

Explanation : Let the radius of circle be ' r ' units and side of square be ' a ' units.

Given, Perimeter of circle

$$\begin{aligned} &= \text{Perimeter of square} \\ 2\pi r &= 4a \\ \Rightarrow a &= \frac{\pi r}{2} \\ \text{So, } \frac{\text{Area of circle}}{\text{Area of square}} &= \frac{\pi r^2}{\left(\frac{\pi r}{2}\right)^2} = \frac{4}{\pi} \\ &= \frac{14}{11} \end{aligned}$$

14. 16 : 9

[CBSE Marking Scheme, 2022] 1

Detailed Answer:**Option (C) is correct.***Explanation :* Let r_1 and r_2 be the radii of two circles,

$$\text{then } \frac{r_1}{r_2} = \frac{4}{3}$$

Now,

$$\begin{aligned}\frac{\text{area of one circle}}{\text{area of second circle}} &= \frac{\pi r_1^2}{\pi r_2^2} \\ &= \left(\frac{r_1}{r_2}\right)^2 = \left(\frac{4}{3}\right)^2 = \frac{16}{9}\end{aligned}$$

Hence, ratio of areas of two circles is 16 : 9. 1**15.** $147\pi \text{ cm}^2$

[CBSE Marking Scheme, 2022] 1

Detailed Answer:**Option (D) is correct.***Explanation :* Radius of a hemisphere (r)
= 7 cm

$$\begin{aligned}\therefore \text{Total surface area of a solid hemisphere} &= 3\pi r^2 \\ &= 3\pi(7)^2 \\ &= 147\pi \text{ cm}^2\end{aligned}$$
1

16. 20

[CBSE Marking Scheme, 2022] 1

Detailed Answer:**Option (C) is correct.***Explanation :* Class interval of given highest frequency is 15 – 20. 1

Hence, the upper limit of the modal class is 20.

17. 8

[CBSE Marking Scheme, 2022] 1

Detailed Answer:**Option (B) is correct.***Explanation :*

Variable (x)	Frequency (f)	$f \times x$
1	4	4
2	5	10
3	y	$3y$
4	1	4
5	2	10
	$\Sigma f = 12 + y$	$\Sigma fx = 28 + 3y$

 $\therefore \text{Mean} = 2.6 \text{ (given)}$

$$\frac{\Sigma fx}{\Sigma f} = 2.6$$

$$\Rightarrow \frac{28 + 3y}{12 + y} = 2.6$$

$$\Rightarrow 28 + 3y = 31.2 + 2.6y$$

$$\Rightarrow 0.4y = 3.2$$

$$\Rightarrow y = 8$$

18. $\frac{3}{26}$

[CBSE Marking Scheme, 2022] 1

Detailed Answer:**Option (A) is correct.***Explanation :* Total outcomes,

$$n(s) = 52$$

Number of red face cards = 6

i.e., Favourable outcomes, $n(A) = 6$

$$\therefore P(\text{a red face card}) = \frac{n(A)}{n(s)}$$

$$= \frac{6}{52} = \frac{3}{26} \quad 1$$

19. Assertion (A) is false but Reason (R) is true.

[CBSE Marking Scheme, 2022] 1

Detailed Answer:**Option (D) is correct.***Explanation :* For assertion,Prime factors of 510 = $2 \times 3 \times 5 \times 17$ and prime factors of 92 = $2 \times 2 \times 23$

$$\therefore \text{H.C.F.}(510, 92) = 2$$

$$\text{and L.C.M.}(510, 92) = 2 \times 2 \times 3 \times 5 \times 17 \times 23 = 23460$$

But L.C.M. (510, 92) is given 32460, which is wrong.
Hence, assertion is false.

For reason,

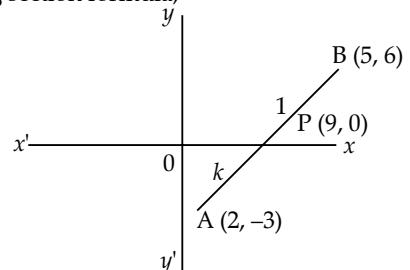
Since, product of two numbers is equal to the product of H.C.F. and L.C.M. of given two numbers.
Hence, reason is true. 1**20.** Both Assertion (A) and Reason (R) are true and

Reason (R) is the correct explanation of Assertion

(A). [CBSE Marking Scheme, 2022] 1

Detailed Answer:**Option (A) is correct.***Explanation :* For assertion,Let the required point be $P(a, 0)$ and required ratio $AP : PB = k : 1$.

Using section formula,



$$x = \frac{mx_2 + nx_1}{m+n}, y = \frac{my_2 + ny_1}{m+n}$$

$$0 = \frac{k \times 6 + 1 \times (-3)}{k+1}$$

$$\Rightarrow 6k - 3 = 0$$

$$\Rightarrow 6k = 3$$

$$\Rightarrow k = \frac{3}{6} = \frac{1}{2}$$

Hence, assertion is true.

For reason,

As we know that the section formula:

$$P(x, y) = \left(\frac{mx_2 + nx_1}{m+n}, \frac{my_2 + ny_1}{m+n} \right)$$

Hence, reason is the explanation of assertion. 1

Section - B

- 21.** For a pair of linear equations to have infinitely many solutions :

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

$$\Rightarrow \frac{k}{12} = \frac{3}{k} = \frac{k-3}{k} \quad \frac{1}{2}$$

$$\text{Now, } \frac{k}{12} = \frac{3}{k}$$

$$\Rightarrow k^2 = 36$$

$$\Rightarrow k = \pm 6 \quad \frac{1}{2}$$

$$\text{Also, } \frac{3}{k} = \frac{k-3}{k}$$

$$\Rightarrow k^2 - 6k = 0$$

$$\Rightarrow k = 0, 6 \quad \frac{1}{2}$$

Therefore, the value of k , that satisfies both the conditions, is $k = 6$.

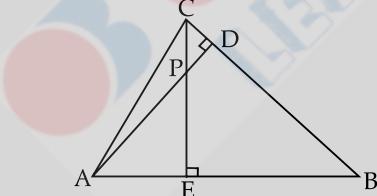
[CBSE Marking Scheme, 2022] $\frac{1}{2}$

- 22. (i)** In ΔABD and ΔCBE

$$\angle ADB = \angle CEB = 90^\circ$$

$$\angle ABD = \angle CBE \text{ (Common angle)}$$

$$\Rightarrow \Delta ABD \sim \Delta CBE \text{ (AA criterion)} \quad 1$$



- (ii)** In ΔPDC and ΔBEC

$$\angle PDC = \angle BEC = 90^\circ$$

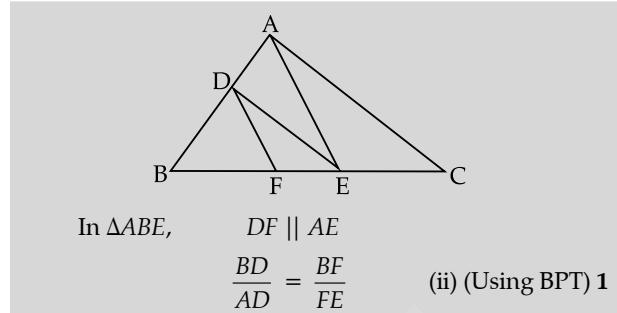
$$\angle PCD = \angle BCE \text{ (Common angle)}$$

$$\Rightarrow \Delta PDC \sim \Delta BEC \text{ (AA criterion)} \quad 1$$

OR

In ΔABC , $DE \parallel AC$

$$\frac{BD}{AD} = \frac{BE}{EC} \quad \text{(i) (Using BPT)}$$



From (i) and (ii)

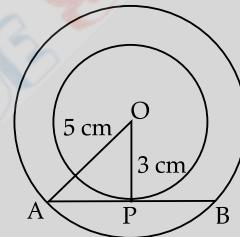
$$\frac{BD}{AD} = \frac{BE}{EC} = \frac{BF}{FE}$$

$$\text{Thus, } \frac{BF}{FE} = \frac{BE}{EC}$$

[CBSE Marking Scheme, 2022] 1

- 23.** Let O be the centre of the concentric circle of radii 5 cm and 3 cm respectively. Let AB be a chord of the larger circle touching the smaller circle at P .

Then $AP = PB$ and $OP \perp AB$ 1



Applying Pythagoras theorem in ΔOPA , we have

$$OA^2 = OP^2 + AP^2$$

$$25 = 9 + AP^2$$

$$AP^2 = 16$$

$$AP = 4 \text{ cm}$$

$$AB = 2AP = 8 \text{ cm}$$

[CBSE Marking Scheme, 2022] 1

$$\text{24. Now, } \frac{(1+\sin\theta)(1-\sin\theta)}{(1+\cos\theta)(1-\cos\theta)} = \frac{(1-\sin^2\theta)}{(1-\cos^2\theta)}$$

$[\because \sin^2 A + \cos^2 A = 1]$

$$= \frac{\cos^2\theta}{\sin^2\theta} = \left(\frac{\cos\theta}{\sin\theta}\right)^2 \quad 1$$

$$= \cot^2\theta$$

$$= \left(\frac{7}{8}\right)^2 = \frac{49}{64}$$

[CBSE Marking Scheme, 2022] 1

25. Perimeter of quadrant = $2r + \frac{1}{4} \times 2\pi r$ ½

$$\Rightarrow \text{Perimeter} = 2 \times 14 + \frac{1}{2} \times \frac{22}{7} \times 14 \quad \text{½}$$

$$\Rightarrow \text{Perimeter} = 28 + 22 = 50 \text{ cm} \quad \text{1}$$

OR

Area of the circle = Area of first circle + Area of second circle

$$\Rightarrow \pi R^2 = \pi (r_1)^2 + \pi (r_1)^2 \quad \text{½}$$

$$\Rightarrow \pi R^2 = \pi (24)^2 + \pi (7)^2$$

$$\Rightarrow \pi R^2 = 576\pi + 49\pi \quad \text{½}$$

$$\Rightarrow \pi R^2 = 625\pi$$

$$\Rightarrow R^2 = 625$$

$$\Rightarrow R = 25$$

Thus, diameter of the circle = $2R = 50 \text{ cm}$.

[CBSE Marking Scheme, 2020] 1

Section - C

26. Let us assume to the contrary, that $\sqrt{5}$ is rational.

Then we can find a and b ($\neq 0$) such that $\sqrt{5} = \frac{a}{b}$

(assuming that a and b are co-primes).

$$\text{So, } a = \sqrt{5} b \Rightarrow a^2 = 5b^2$$

Here 5 is a prime number that divides a^2 , then 5 divides a .

(Using the theorem, if a is a prime number and if a divides p^2 , then a divides p , where a is a positive integer)

Thus 5 is a factor of a .

Since 5 is a factor of a , we can write $a = 5c$ (where c is a constant). Substituting $a = 5c$, We get

$$(5c)^2 = 5b^2 \Rightarrow 5c^2 = b^2$$

This means 5 divides b^2 , so 5 divides b also.

(Using the theorem, if a is a prime number and if a divides p^2 , then a divides p , where a is a positive integer).

Hence a and b have at least 5 as a common factor.

But this contradicts the fact that a and b are coprime. This is the contradiction to our assumption that p and q are co-primes.

So, $\sqrt{5}$ is not a rational number. Therefore, the $\sqrt{5}$ is irrational.

[CBSE Marking Scheme, 2022] 3

27. $6x^2 - 7x - 3 = 0$ ½

$$\Rightarrow 6x^2 - 9x + 2x - 3 = 0$$

$$\Rightarrow 3x(2x - 3) + 1(2x - 3) = 0$$

$$\Rightarrow (2x - 3)(3x + 1) = 0$$

$$\Rightarrow 2x - 3 = 0 \text{ and } 3x + 1 = 0 \quad \text{½}$$

$$x = \frac{3}{2} \text{ and } x = -\frac{1}{3}$$

Hence, the zeroes of the quadratic polynomials are

$$\frac{3}{2} \text{ and } -\frac{1}{3}.$$

For verification

$$\text{Sum of zeros} = \frac{-\text{coefficient of } x}{\text{coefficient of } x^2}$$

$$\Rightarrow \frac{3}{2} + \left(-\frac{1}{3}\right) = -\left(\frac{-7}{6}\right) \quad \text{1}$$

$$\Rightarrow \frac{7}{6} = \frac{7}{6} \quad \text{1}$$

$$\text{Product of roots} = \frac{\text{constant}}{\text{coefficient of } x^2}$$

$$\Rightarrow \frac{3}{2} \times \left(-\frac{1}{3}\right) = \frac{(-3)}{6}$$

$$\Rightarrow -\frac{1}{2} = -\frac{1}{2} \quad \text{1}$$

Therefore, the relationship between zeroes and their coefficients is verified.

[CBSE Marking Scheme, 2022] 1

28. Let the fixed charge by ₹ x and additional charge by ₹ y per day.

Number of days for Latika = $6 = 2 + 4$

Hence, Charge $x + 4y = 22$ (i) ½

$$x = 22 - 4y \quad \text{(i) ½}$$

Number of days for Anand = $4 = 2 + 2$

Hence, Charge $x + 2y = 16$ (ii) ½

$$x = 16 - 2y \quad \text{(ii) ½}$$

On comparing equation (i) and (ii), we get

$$22 - 4y = 16 - 2y \quad \text{1}$$

$$\Rightarrow 2y = 6$$

$$\Rightarrow y = 3 \quad \text{1}$$

Substituting $y = 3$ in equation (i), we get

$$x = 22 - 4(3) \quad \text{1}$$

$$\Rightarrow x = 22 - 12$$

$$\Rightarrow x = 10$$

Therefore, fixed charge = ₹ 10 and additional charge = ₹ 3 per day 1

OR



$AB = 100$ km. We know that,

$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$AP - BP = 100$$

$$\Rightarrow 5x - 5y = 100$$

$$\Rightarrow x - y = 20 \quad \text{(i) } \frac{1}{2}$$

$$AQ + BQ = 100$$

$$\Rightarrow x + y = 100 \quad \text{(ii) } \frac{1}{2}$$

Adding equations (i) and (ii), we get

$$x - y + x + y = 20 + 100$$

$$\Rightarrow 2x = 120$$

$$\Rightarrow x = 60 \quad \text{1}$$

Substituting $x = 60$ in equation (ii), we get

$$60 + y = 100$$

$$\Rightarrow y = 40$$

Therefore, the speed of the first car is 60 km/hr and the speed of the second car is 40 km/hr.

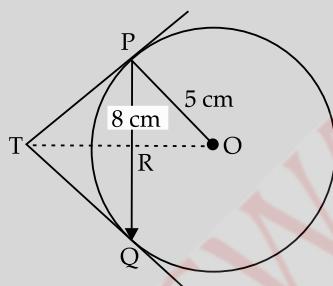
[CBSE Marking Scheme, 2022] 1

29. Since OT is perpendicular bisector of PQ .

$$\text{Therefore, } PR = RQ = 4 \text{ cm} \quad \frac{1}{2}$$

$$\text{Now, } OR = \sqrt{OP^2 - PR^2}$$

$$= \sqrt{5^2 - 4^2} = 3 \text{ cm } \frac{1}{2}$$



$$\text{Now, } \angle TPR + \angle RPO = 90^\circ (\because TPO = 90^\circ)$$

$$\text{and } \angle TPR + \angle PTR = 90^\circ (\because TRP = 90^\circ)$$

$$\text{So, } \angle RPO = \angle PTR \quad \frac{1}{2}$$

$$\text{So, } \triangle TRP \sim \triangle PRO$$

[By AA rule of similar triangles] $\frac{1}{2}$

$$\text{So, } \frac{TP}{PO} = \frac{RP}{RO}$$

$$\Rightarrow \frac{TP}{5} = \frac{4}{3}$$

$$\Rightarrow TP = \frac{20}{3} \text{ cm}$$

[CBSE Marking Scheme, 2022] 1

$$\text{30. LHS} = \frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta}$$

$$= \frac{\tan \theta}{1 - \frac{1}{\tan \theta}} + \frac{\frac{1}{\tan \theta}}{1 - \tan \theta} \quad \frac{1}{2}$$

$$= \frac{\tan^2 \theta}{\tan \theta - 1} + \frac{1}{\tan \theta(1 - \tan \theta)}$$

$$= \frac{\tan^3 \theta - 1}{\tan \theta(\tan \theta - 1)} \quad \frac{1}{2}$$

$$= \frac{(\tan \theta - 1)(\tan^2 \theta + \tan \theta + 1)}{\tan \theta(\tan \theta - 1)} \quad \frac{1}{2}$$

$$= \frac{(\tan^2 \theta + \tan \theta + 1)}{\tan \theta} \quad \frac{1}{2}$$

$$= \tan \theta + 1 + \cot \theta = 1 + \tan \theta + \cot \theta \quad \frac{1}{2}$$

$$= 1 + \frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta}$$

$$= 1 + \frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta \cos \theta}$$

$$= 1 + \frac{1}{\sin \theta \cos \theta} = 1 + \sec \theta \cosec \theta = \text{RHS } 1$$

Hence Proved

OR

$$\sin \theta + \cos \theta = \sqrt{3}$$

$$(\sin \theta + \cos \theta)^2 = 3$$

$$\Rightarrow \sin^2 \theta + \cos^2 \theta + 2\sin \theta \cos \theta = 3 \quad \frac{1}{2}$$

$$\Rightarrow 1 + 2\sin \theta \cos \theta = 3$$

$$\Rightarrow \sin \theta \cos \theta = 1 \quad \dots(i)$$

$$\text{Now, } \tan \theta + \cot \theta = \frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta} \quad 1$$

$$= \frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta \cos \theta}$$

$$= \frac{1}{\sin \theta \cos \theta} = \frac{1}{1} = 1$$

[Using eq. (i)]

Hence Proved

[CBSE Marking Scheme, 2022] 1

$$\text{31. (i) } P(8) = \frac{5}{36} \quad 1$$

$$\text{(ii) } P(13) = \frac{0}{36} = 0 \quad 1$$

$$\text{(iii) } P(\text{less than or equal to } 12) = 1 \quad 1$$

[CBSE Marking Scheme, 2022]

Detailed Answer:

Given: Sample space for two dice

$$S = \{(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6)$$

$$(2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6),$$

$$(3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6),$$

$$(4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6),$$

$$(5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6),$$

- $(6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)$
 $\therefore n(s) = 36$
- (i) Let E be the sum of two numbers appearing on the top of the dice is 8
or, $E = \{(2, 6), (3, 5), (4, 4), (5, 3), (6, 2)\}$
 $\therefore n(E) = 5$
Required probability = $\frac{n(E)}{n(s)} = \frac{5}{36}$
- (ii) Let E be the sum of two numbers appearing on the top of the dice is 13
or, $E = \emptyset$
 $\therefore n(E) = 0$
Required probability = $\frac{0}{36} = 0$
- (iii) Let E be the sum of two numbers appearing on the top of the dice is less than or equal to 12.
So, $n(E) = 36$
 \therefore Required probability = $\frac{36}{36} = 1$

Section - D

32. Let the average speed of passenger train = x km/h.
and the average speed of express train = $(x + 11)$ km/h ½

As per given data, time taken by the express train to cover 132 km is 1 hour less than the passenger train to cover the same distance. Therefore,

$$\begin{aligned} & \frac{132}{x} - \frac{132}{x+11} = 1 & 1 \\ \Rightarrow & \frac{132(x+11-x)}{x(x+11)} = 1 \\ \Rightarrow & \frac{132 \times 11}{x(x+11)} = 1 & \frac{1}{2} \\ \Rightarrow & 132 \times 11 = x(x+11) \\ \Rightarrow & x^2 + 11x - 1452 = 0 & 1 \\ \Rightarrow & x^2 + 44x - 33x - 1452 = 0 \\ \Rightarrow & x(x+44) - 33(x+44) = 0 \\ \Rightarrow & (x+44)(x-33) = 0 \\ \Rightarrow & x = -44, 33 & 1 \end{aligned}$$

As the speed cannot be negative, the speed of the passenger train will be 33 km/h and the speed of the express train will be $33 + 11 = 44$ km/h. 1

OR

Let the speed of the stream be x km/h.
So, the speed of the boat in upstream = $(18 - x)$ km/h ½
and the speed of the boat in downstream = $(18 + x)$ km/h ½

ATQ, $\frac{\text{distance}}{\text{upstream speed}} - \frac{\text{distance}}{\text{downstream speed}} = 1$

$$\begin{aligned} \Rightarrow & \frac{24}{18-x} - \frac{24}{18+x} = 1 & 1 \\ \Rightarrow & 24 \left[\frac{1}{18-x} - \frac{1}{18+x} \right] = 1 \\ \Rightarrow & 24 \left[\frac{18+x-(18-x)}{(18-x)(18+x)} \right] = 1 & 1 \\ \Rightarrow & 24 \left[\frac{2x}{(18-x)(18+x)} \right] = 1 \\ \Rightarrow & 24 \left[\frac{2x}{(18-x)(18+x)} \right] = 1 & 1 \\ \Rightarrow & 48x = 324 - x^2 \\ \Rightarrow & x^2 + 48x - 324 = 0 \\ \Rightarrow & (x+54)(x-6) = 0 \\ \Rightarrow & x = -54 \text{ or } 6 \end{aligned}$$

As speed to stream can never be negative, the speed of the stream is 6 km/h.

[CBSE Marking Scheme, 2022] 1

33. Figure

Given, To prove, constructions

Proof

Application ---- [CBSE Marking Scheme, 2022] 5

Detailed Answer:

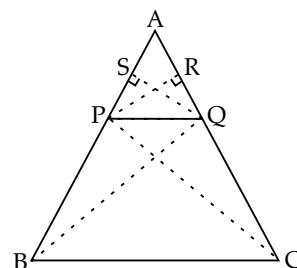
Given: $\triangle ABC$, where $PQ \parallel BC$.

To prove: $\frac{AP}{BP} = \frac{AQ}{CQ}$.

Construction: Join BQ, PC .

Draw $PR \perp AQ$ or AC

and $QS \perp AP$ or AB



Proof: $\triangle APQ$ and $\triangle PCQ$ are on the same base PQ and lie between same parallel PQ and BC .

So, $ar(\triangle APQ) = ar(\triangle PCQ)$... (i)

Now,
$$\frac{ar(\triangle APQ)}{ar(\triangle PBQ)} = \frac{\frac{1}{2} \times AP \times SQ}{\frac{1}{2} \times PB \times SQ}$$

or, $\frac{ar(\Delta APQ)}{ar(\Delta PBQ)} = \frac{AP}{PB}$... (ii)

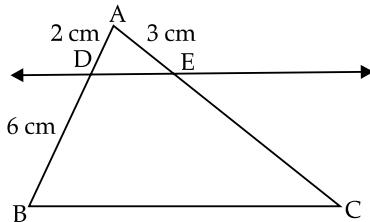
Again, $\frac{ar(\Delta APQ)}{ar(\Delta PCQ)} = \frac{\frac{1}{2} \times AQ \times PR}{\frac{1}{2} \times QC \times PR}$

or $\frac{ar(\Delta APQ)}{ar(\Delta PCQ)} = \frac{AQ}{QC}$... (iii)

From equations (i), (ii) and (iii), we get

$$\frac{AP}{BP} = \frac{AQ}{QC} \quad \text{Hence Proved.}$$

Given: $AD = 2 \text{ cm}$,
 $AE = 3 \text{ cm}$



and $BD = 6 \text{ cm}$

and $\frac{AD}{DB} = \frac{AE}{EC}$

$$\frac{2}{6} = \frac{3}{EC}$$

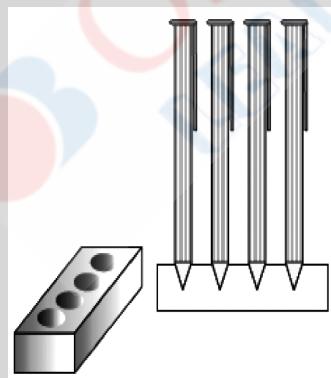
or,
or, $EC = 9 \text{ cm}$

34. Volume of one conical depression $= \frac{1}{3} \times \pi r^2 h$

$$= \frac{1}{3} \times \frac{22}{7} \times 0.5^2 \times 1.4 \text{ cm}^3 = 0.366 \text{ cm}^3 \quad 2$$

Volume of 4 conical depressions $= 4 \times 0.366 \text{ cm}^3$

$$= 1.464 \text{ cm}^3 \quad \frac{1}{2}$$



Volume of cuboidal box $= L \times B \times H$

$$= 15 \times 10 \times 3.5 \text{ cm}^3 = 525 \text{ cm}^3 \quad 2$$

Remaining volume of box $=$ Volume of cuboidal box - Volume of 4 conical depressions $\quad \frac{1}{2}$

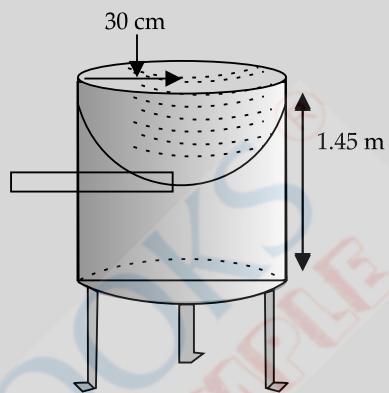
$$= 525 \text{ cm}^3 - 1.464 \text{ cm}^3 = 523.5 \text{ cm}^3 \quad 1$$

OR

Let h be height of the cylinder, and r the common radius of the cylinder and hemisphere.

Then, the total surface area $=$ CSA of cylinder + CSA of hemisphere $\quad \frac{1}{2}$

$$= 2\pi rh + 2\pi r^2 = 2\pi r(h + r) \quad 2$$



$$= 2 \times \frac{22}{7} \times 30(145 + 30) \text{ cm}^2 \quad \frac{1}{2}$$

$$= 2 \times \frac{22}{7} \times 30 \times 175 \text{ cm}^2 \quad 2$$

$$= 33000 \text{ cm}^2 = 3.3 \text{ m}^2 \quad 2$$

[CBSE Marking Scheme, 2022]

35.

Class Interval	Number of policy holders (f)	Cumulative Frequency (cf)
Below 20	2	2
20 – 25	4	6
25 – 30	18	24
30 – 35	21	45
35 – 40	33	78
40 – 45	11	89
45 – 50	3	92
50 – 55	6	98
55 – 60	2	100

$$n = 100 \Rightarrow \frac{n}{2} = 50$$

Therefore, median class $= 35 – 40$,

Class size, $h = 5$, Lower limit of median class, $l = 35$, frequency, $f = 33$ and cumulative frequency, $cf = 45$

$$\Rightarrow \text{Median} = l + \left[\frac{\frac{n}{2} - cf}{f} \right] \times h \quad 2$$

$$\Rightarrow \text{Median} = 35 + \left[\frac{50-45}{33} \right] \times 5 \\ = 35 + \frac{25}{33} = 35 + 0.76 \\ = 35.76$$

Therefore, median age is 35.76 years.

[CBSE Marking Scheme, 2022] 2

Section - E

Case study based questions are compulsory.

- 36. I.** Since the production increases uniformly by a fixed number every year, the number of cars manufactured in 1st, 2nd, 3rd, ..., years will form an AP.

$$\text{So, } a + 3d = 1800 \text{ and } a + 7d = 2600$$

On solving, we get

$$d = 200 \text{ and } a = 1200 \quad 1$$

Hence, company manufactures 1200 cars in first year

$$\begin{aligned} \text{II. } t_{12} &= a + 11d \\ \Rightarrow t_{12} &= 1200 + 11 \times 200 \\ \Rightarrow t_{12} &= 3400 \end{aligned} \quad 1$$

Hence, company manufactures 3,400 cars in 12th year.

$$\begin{aligned} \text{III. } S_n &= \frac{n}{2} [2a + (n-1)d] \\ \Rightarrow S_{10} &= \frac{10}{2} [2 \times 1200 + (10-1)200] \\ \Rightarrow S_{10} &= \frac{13}{2} [2 \times 1200 + 9 \times 200] \\ \Rightarrow S_{10} &= 5 \times [2400 + 1800] \\ \Rightarrow S_{10} &= 5 \times 4200 = 21000 \end{aligned} \quad 2$$

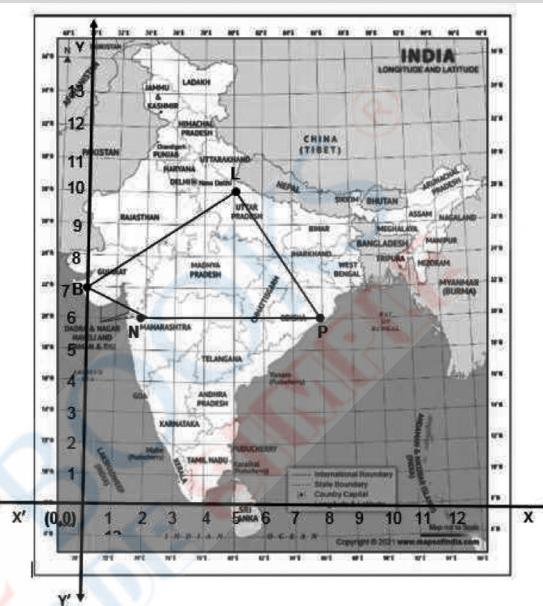
OR

Let in n years the production will reach to 31200.

$$\begin{aligned} S_n &= \frac{n}{2} [2a + (n-1)d] \\ \Rightarrow 31200 &= \frac{n}{2} [2a + (n-1)d] \\ \Rightarrow \frac{n}{2} [2 \times 1200 + (n-1)200] &= 31200 \\ \Rightarrow n^2 + 11n - 312 &= 0 \end{aligned}$$

$$\begin{aligned} \Rightarrow n + 24n - 13n - 312 &= 0 \\ \Rightarrow (n+24)(n-13) &= 0 \\ \Rightarrow n = 13 \text{ or } -24. \text{ As } n \text{ can't be negative. So } n = 13 \\ &[\text{CBSE Marking Scheme, 2022}] 2 \end{aligned}$$

37.



$$\begin{aligned} \text{I. } LB &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ \Rightarrow LB &= \sqrt{(0 - 5)^2 + (7 - 10)^2} \\ &= \sqrt{(5)^2 + (3)^2} \\ \Rightarrow LB &= \sqrt{25 + 9} \\ \Rightarrow LB &= \sqrt{34} \\ \text{Hence the distance is } 150\sqrt{34} \text{ km.} \end{aligned} \quad 1$$

II. Coordinate of Kota (K) is

$$\begin{aligned} &\left(\frac{3 \times 5 + 2 \times 0}{3 + 2}, \frac{3 \times 7 + 2 \times 10}{3 + 2} \right) \\ &= \left(\frac{15 + 0}{5}, \frac{21 + 20}{5} \right) = \left(3, \frac{41}{5} \right) \mathbf{1} \end{aligned}$$

III. L (5, 10), N (2, 6), P (8, 6)

$$\begin{aligned} LN &= \sqrt{(2 - 5)^2 + (6 - 10)^2} \\ &= \sqrt{(3)^2 + (4)^2} \\ &= \sqrt{9 + 16} = \sqrt{25} = 5 \\ NP &= \sqrt{(8 - 2)^2 + (6 - 6)^2} \\ &= \sqrt{(4)^2 + (0)^2} = 4 \end{aligned}$$

$$\begin{aligned}
 PL &= \sqrt{(8-5)^2 + (6-10)^2} \\
 &= \sqrt{(3)^2 + (4)^2} \\
 \Rightarrow LB &= \sqrt{9+16} = \sqrt{25} = 5 \\
 \text{As } LN &= PL \neq NP, \text{ so } \triangle LNP \text{ is an isosceles triangle.}
 \end{aligned}$$

2

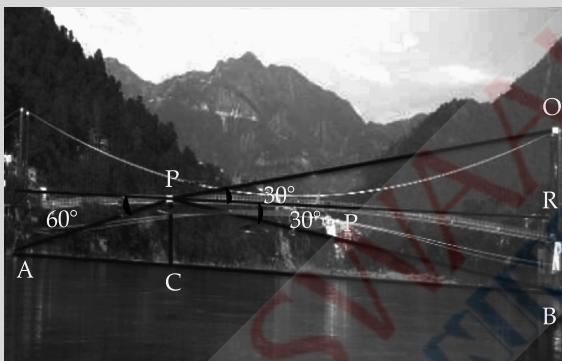
OR

Let $A(0, b)$ be a point on the y -axis, then $AL = AP$.

$$\begin{aligned}
 \Rightarrow \sqrt{(5-0)^2 + (10-b)^2} &= \sqrt{(8-0)^2 + (6-b)^2} \\
 \Rightarrow (5)^2 + (10-b)^2 &= (8)^2 + (6-b)^2 \\
 \Rightarrow 25 + 100 - 20b + b^2 &= 64 + 36 - 12b + b^2 \\
 \Rightarrow 8b &= 25 \Rightarrow b = \frac{25}{8}
 \end{aligned}$$

So, the coordinate on y -axis is $\left(0, \frac{25}{8}\right)$.

[CBSE Marking Scheme, 2022] 2

38.

$$\begin{aligned}
 \text{I. } \sin 60^\circ &= \frac{PC}{PA} \\
 \Rightarrow \frac{\sqrt{3}}{2} &= \frac{18}{PA} \\
 \Rightarrow PA &= 12\sqrt{3} \text{ m}
 \end{aligned}$$

1

$$\begin{aligned}
 \text{II. } \sin 30^\circ &= \frac{PC}{PB} \\
 \Rightarrow \frac{1}{2} &= \frac{18}{PB} \\
 \Rightarrow PB &= 36 \text{ m} \quad 1
 \end{aligned}$$

$$\begin{aligned}
 \text{III. } \tan 60^\circ &= \frac{PC}{AC} \\
 \Rightarrow \sqrt{3} &= \frac{18}{AC} \\
 \Rightarrow AC &= 6\sqrt{3} \text{ m} \quad \frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 \tan 30^\circ &= \frac{PC}{CB} \\
 \Rightarrow \frac{1}{\sqrt{3}} &= \frac{18}{CB} \\
 \Rightarrow CB &= 18\sqrt{3} \text{ m} \quad \frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 \text{Width } AB &= AC + CB \\
 &= 6\sqrt{3} + 18\sqrt{3} \\
 &= 24\sqrt{3} \text{ m} \quad 1
 \end{aligned}$$

OR

$RB = PC = 18$ m and

$$PR = CB = 18\sqrt{3}$$

$$\begin{aligned}
 \tan 30^\circ &= \frac{QR}{PR} \\
 \Rightarrow \frac{1}{\sqrt{3}} &= \frac{QR}{18\sqrt{3}} \\
 \Rightarrow QR &= 18 \text{ m} \\
 QB &= QR + RB \\
 &= 18 + 18 = 36 \text{ m}
 \end{aligned}$$

Hence, height BQ is 36 m.

[CBSE Marking Scheme, 2022] 2



Sample Question Paper-1

(Issued by Board dated 16th Sep. 2022)

Mathematics Standard (041)

Class- X

Session- 2022-23

SOLVED

Time Allowed: 3 hours

Maximum Marks: 80

General Instructions:

- (i) This Question Paper has 5 Sections A-E.
 - (ii) Section A has 20 MCQs carrying 1 mark each
 - (iii) Section B has 5 questions carrying 02 marks each.
 - (iv) Section C has 6 questions carrying 03 marks each.
 - (v) Section D has 4 questions carrying 05 marks each.
 - (vi) Section E has 3 case based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.
 - (vii) All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2 Qs of 3 marks and 2 Questions of 2 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E
 - (viii) Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

Section - A

Section A consists of 20 questions of 1 mark each.

- 16.** For the following distribution,

Class	0-5	5-10	10-15	15-20	20-25
Frequency	10	15	12	20	9

the sum of the lower limits of the median and modal class is

- 17.** Two dice are rolled simultaneously. What is the probability that 6 will come up at least once?

- (A) $\frac{1}{6}$ (B) $\frac{7}{36}$
 (C) $\frac{11}{36}$ (D) $\frac{13}{36}$

- 18.** If $5 \tan \beta = 4$, then $\frac{5 \sin \beta - 2 \cos \beta}{5 \sin \beta + 2 \cos \beta} =$

- (A) $\frac{1}{3}$ (B) $\frac{2}{5}$
 (C) $\frac{3}{5}$ (D) 6

DIRECTION: In the question number 19 and 20, a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Choose the correct option

- 19. Statement A (Assertion):** If product of two numbers is 5780 and their HCF is 17, then their LCM is 340.

Statement R(Reason): HCF is always a factor of LCM.

- (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(B) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A).
(C) Assertion (A) is true but reason (R) is false.
(D) Assertion (A) is false but reason (R) is true.

- 20. Statement A (Assertion):** If the co-ordinates of the mid-points of the sides AB and AC of $\triangle ABC$ are D(3, 5) and E(-3, -3) respectively, then $BC = 20$ units.

Statement R(Reason): The line joining the mid points of two sides of a triangle is parallel to the third side and equal to half of it.

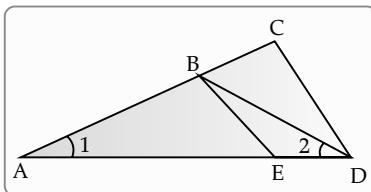
- (A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)
(B) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A)
(C) Assertion (A) is true but reason (R) is false.
(D) Assertion (A) is false but reason (R) is true.

Section - B

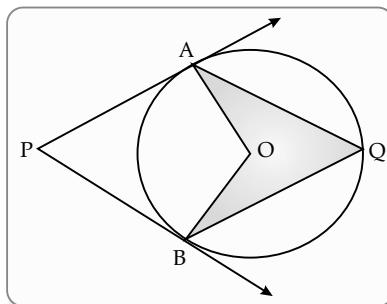
Section B consists of 5 questions of 2 marks each.

- 21.** If $49x + 51y = 499$, $51x + 49y = 501$, then find the value of x and y .

- 22.** In the given figure below, $\frac{AD}{AE} = \frac{AC}{BD}$ and $\angle 1 = \angle 2$. Show that $\triangle BAE \sim \triangle CAD$.



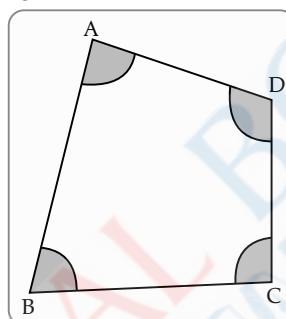
- 23.** In the given figure, O is the centre of circle. Find $\angle AQB$, given that PA and PB are tangents to the circle and $\angle APB = 75^\circ$. 2



- 24.** The length of the minute hand of a clock is 6 cm. Find the area swept by it when it moves from 7:05 p.m. to 7:40 p.m.

OR

- In the given figure, arcs have been drawn of radius 7 cm each with vertices A, B, C and D of quadrilateral ABCD as centres. Find the area of the shaded region. 2



- 25.** If $\sin(A + B) = 1$ and $\cos(A - B) = \frac{\sqrt{3}}{2}$, $0^\circ < A + B \leq 90^\circ$ and $A > B$, then find the measures of angles A and B.

OR

Find an acute angle θ when $\frac{\cos\theta - \sin\theta}{\cos\theta + \sin\theta} = \frac{1 - \sqrt{3}}{1 + \sqrt{3}}$

Section - C

Section C consists of 6 questions of 3 marks each.

- 26.** Given that $\sqrt{3}$ is irrational, prove that $5 + 2\sqrt{3}$ is irrational. 3

- 27.** If the zeroes of the polynomial $x^2 + px + q$ are double in value to the zeroes of the polynomial $2x^2 - 5x - 3$, then find the values of p and q . 3

- 28.** A train covered a certain distance at a uniform speed. If the train would have been 6 km/h faster, it would have taken 4 hours less than the scheduled time. And, if the train were slower by 6 km/hr ; it would have taken 6 hours more than the scheduled time. Find the length of the journey.

OR

Anuj had some chocolates, and he divided them into two lots A and B. He sold the first lot at the rate of ₹ 2 for 3 chocolates and the second lot at the rate of ₹ 1 per chocolate, and got a total of ₹ 400. If he had sold the first lot at the rate of ₹ 1 per chocolate, and the second lot at the rate of ₹ 4 for 5 chocolates, his total collection would have been ₹ 460. Find the total number of chocolates he had. 3

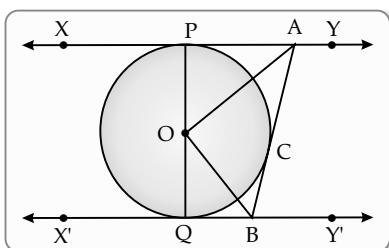
- 29.** Prove the following that:

$$\frac{\tan^3\theta}{1+\tan^2\theta} + \frac{\cot^3\theta}{1+\cot^2\theta} = \sec\theta \cosec\theta - 2\sin\theta \cos\theta$$
3

- 30.** Prove that a parallelogram circumscribing a circle is a rhombus. 3

OR

In the figure XY and $X'Y'$ are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and $X'Y'$ at B, what is the measure of $\angle AOB$.



- 31.** Two coins are tossed simultaneously. What is the probability of getting
 (i) At least one head?
 (ii) At most one tail?
 (iii) A head and a tail? 3

Section - D

Section D consists of 4 questions of 5 marks each.

- 32.** To fill a swimming pool two pipes are used. If the pipe of larger diameter used for 4 hours and the pipe of smaller diameter for 9 hours, only half of the pool can be filled. Find, how long it would take for each pipe to fill the pool separately, if the pipe of smaller diameter takes 10 hours more than the pipe of larger diameter to fill the pool? 5

OR

In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr from its usual speed and the time of the flight increased by 30 min. Find the scheduled duration of the flight. 5

- 33.** Prove that if a line is drawn parallel to one side of a triangle intersecting the other two sides in distinct points, then the other two sides are divided in the same ratio.

Using the above theorem prove that a line through the point of intersection of the diagonals and parallel to the base of the trapezium divides the non parallel sides in the same ratio. 5

- 34.** Due to heavy floods in a state, thousands were rendered homeless. 50 schools collectively decided to provide place and the canvas for 1500 tents and share the whole expenditure equally. The lower part of each tent is cylindrical with base radius 2.8 m and height 3.5 m and the upper part is conical with the same base radius, but of height 2.1 m. If the canvas used to make the tents costs ₹ 120 per m^2 , find the amount shared by each school to set up the tents.

OR

There are two identical solid cubical boxes of side 7 cm. From the top face of the first cube a hemisphere of diameter equal to the side of the cube is scooped out. This hemisphere is inverted and placed on the top of the second cube's surface to form a dome. Find

- (i) the ratio of the total surface area of the two new solids formed
 (ii) volume of each new solid formed. 5

- 35.** The median of the following data is 525. Find the values of x and y , if the total frequency is 100

Class interval	Frequency
0–100	2
100–200	5
200–300	x
300–400	12
400–500	17
500–600	20
600–700	y

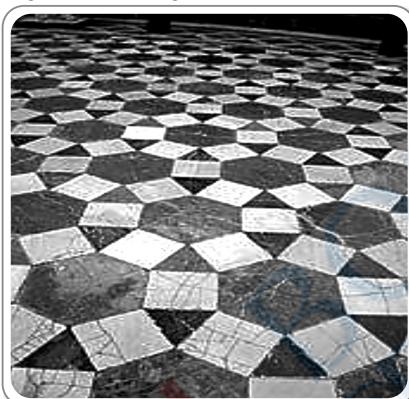
700–800	9
800–900	7
900–1000	4

5

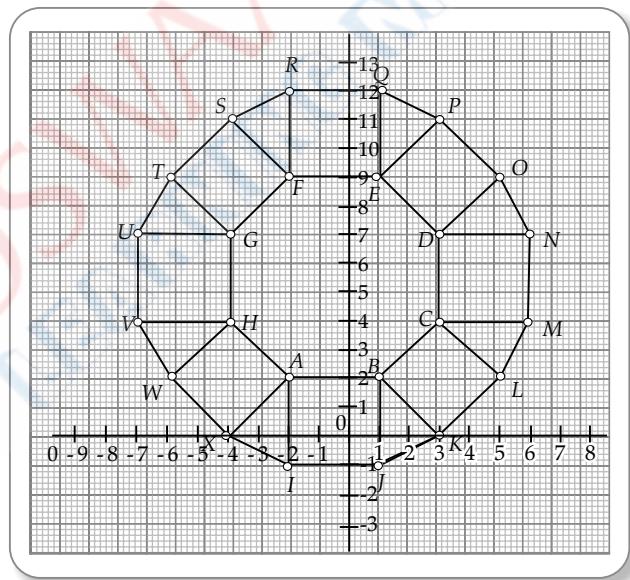
Section - E

Case study based questions are compulsory.

- 36.** A tiling or tessellation of a flat surface is the covering of a plane using one or more geometric shapes, called tiles, with no overlaps and no gaps. Historically, tessellations were used in ancient Rome and in Islamic art. You may find tessellation patterns on floors, walls, paintings etc. Shown below is a tiled floor in the archaeological Museum of Seville, made using squares, triangles and hexagons.



A craftsman thought of making a floor pattern after being inspired by the above design. To ensure accuracy in his work, he made the pattern on the Cartesian plane. He used regular octagons, squares and triangles for his floor tessellation pattern



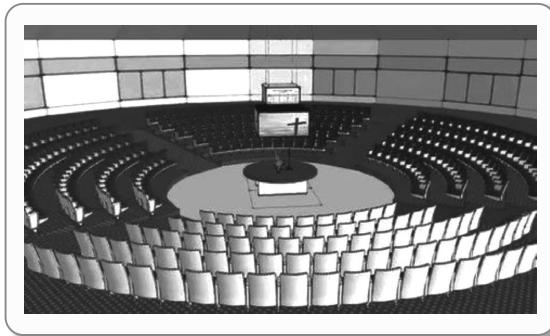
Use the above figure to answer the questions that follow:

- (i) What is the length of the line segment joining points B and F? 1
- (ii) The centre 'Z' of the figure will be the point of intersection of the diagonals of quadrilateral WXOP. Then what are the coordinates of Z? 1
- (iii) What are the coordinates of the point on y-axis equidistant from A and G? 2

OR

What is the area of Trapezium AFGH?

- 37.** The school auditorium was to be constructed to accommodate at least 1500 people. The chairs are to be placed in concentric circular arrangement in such a way that each succeeding circular row has 10 seats more than the previous one.



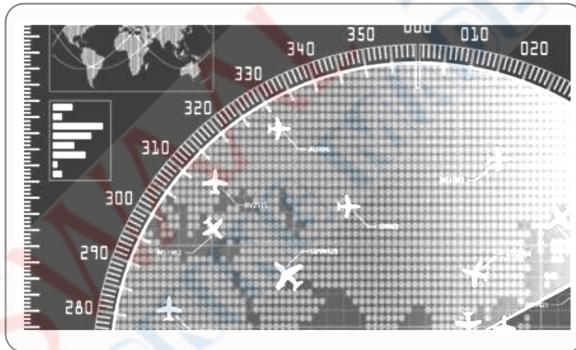
- (i) If the first circular row has 30 seats, how many seats will be there in the 10th row?
(ii) For 1500 seats in the auditorium, how many rows need to be there?

OR

If 1500 seats are to be arranged in the auditorium, how many seats are still left to be put after 10th row? 1

- (iii) If there were 17 rows in the auditorium, how many seats will be there in the middle row? 1

- 38.** We all have seen the airplanes flying in the sky but might have not thought of how they actually reach the correct destination. Air Traffic Control (ATC) is a service provided by ground-based air traffic controllers who direct aircraft on the ground and through a given section of controlled airspace, and can provide advisory services to aircraft in non-controlled airspace. Actually, all this air traffic is managed and regulated by using various concepts based on coordinate geometry and trigonometry.



At a given instance, ATC finds that the angle of elevation of an airplane from a point on the ground is 60° . After a flight of 30 seconds, it is observed that the angle of elevation changes to 30° . The height of the plane remains constantly as $3000\sqrt{3}$ m. Use the above information to answer the questions that follow-

- (i) Draw a neat labelled figure to show the above situation diagrammatically.
(ii) What is the distance travelled by the plane in 30 seconds? 1

OR

Keeping the height constant, during the above flight, it was observed that after $15(\sqrt{3} - 1)$ seconds, the angle of elevation changed to 45° . How much is the distance travelled in that duration. 2

- (iii) What is the speed of the plane in km/hr. 1



SOLUTIONS

Sample Question Paper-1

**With CBSE Marking Scheme 2022-23
Mathematics Standard (041)**

Section - A

- 1. Option (C) is correct.**

Explanation: $a = p^3q^4$ and $b = p^2q^3$
 $\text{HCF}(a, b) = p^2q^3$... (i)
and $\text{LCM}(a, b) = p^3q^4$... (ii)
But gives: $\text{HCF}(a, b) = p^m q^n$ and $\text{LCM}(a, b) = p^r q^s$
From eq. (i), $p^m q^n = p^2 q^3$
So, $m = 2$ and $n = 3$
From eq. (iii), $p^r q^s = p^3 q^4$
So, $r = 3$ and $s = 4$
 $\therefore (m+n)(r+s) = (2+3)(3+4) = 35$.

- 2. Option (B) is correct.**

Explanation: Factors of $p = p \times 1$
 \therefore Roots are p and 1.

The quadratic equation is:

$$x^2 - (\text{sum of roots})x + \text{product of roots} = 0$$

$$\Rightarrow x^2 - (p+1)x + p = 0$$

- 3. Option (B) is correct.**

Explanation:

Given, $f(x) = px^2 - 2x + 3p$
Since α and β are the zeroes of given polynomial.
 $\therefore \alpha + \beta = -\frac{(-2)}{p} = \frac{2}{p}$
and $\alpha\beta = \frac{3p}{p} = 3$
 $\because \alpha + \beta = \alpha\beta$ (given)
 $\therefore \frac{2}{p} = 3$
 $\Rightarrow p = \frac{2}{3}$

- 4. Option (D) is correct.**

Explanation: $3x + y = 1$... (i)
and $(2k-1)x + (k-1)y = 2k+1$... (ii)
Comparing eq. (i) with $a_1x + b_1y + c_1 = 0$ and eq. (ii)
with $a_2x + b_2y + c_2 = 0$, we get
 $a_1 = 3, a_2 = 2k-1, b_1 = 1, b_2 = k-1, c_1 = -1$ and $c_2 = -(2k+1)$

Since, system is inconsistent, then

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

$$\Rightarrow \frac{3}{2k-1} = \frac{1}{k-1} \neq \frac{-1}{-(2k+1)}$$

Either $\frac{3}{2k-1} = \frac{1}{k-1}$ or $\frac{1}{k-1} \neq \frac{1}{2k+1}$

$$\Rightarrow 3k-3 = 2k-1 \text{ or } 2k+1 \neq k-1$$

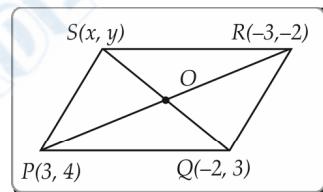
$$\Rightarrow k = 2 \text{ or } k \neq 2$$

Hence, the value of k is 2.

- 5. Option (C) is correct.**

Explanation: Given PQRS is a parallelogram and diagonal PR and QS bisect each other at O.

Let fourth vertex be $S(x, y)$, then



mid point of SQ = mid point of PR

$$\left(\frac{x-2}{2}, \frac{y+3}{2} \right) = \left(\frac{3-3}{2}, \frac{4-2}{2} \right)$$

$$\Rightarrow \frac{x-2}{2} = \frac{3-3}{2}$$

$$\text{and } \frac{y+3}{2} = \frac{4-2}{2}$$

$$\Rightarrow x-2 = 0$$

$$\Rightarrow x = 2$$

$$\text{and } y+3 = 2$$

$$\Rightarrow y = -1$$

Hence, fourth vertex S are $(2, -1)$.

- 6. Option (D) is correct.**

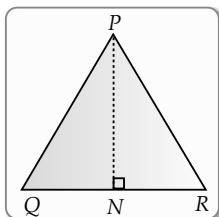
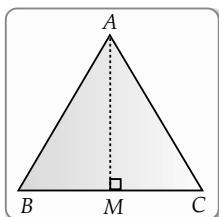
Explanation:

We have, $\Delta ABC \sim \Delta PQR$

$$\frac{AB}{PQ} = \frac{BC}{QR}$$

$$= \frac{CA}{RP} = \frac{AM}{PN}$$

(corresponding sides of similar triangle)



But $\frac{AB^2}{PQ^2} = \frac{4}{9}$

or $\left(\frac{AB}{PQ}\right)^2 = \left(\frac{2}{3}\right)^2$

or $\frac{AB}{PQ} = \frac{2}{3}$

i.e., $\frac{AB}{PQ} = \frac{AM}{PN} = \frac{2}{3}$

Hence, $AM : PN = 2 : 3$.

7. Option (B) is correct.

Explanation:

$$x \tan 60^\circ \cos 60^\circ = \sin 60^\circ \cot 60^\circ$$

$$\Rightarrow x \times \sqrt{3} \times \frac{1}{2} = \frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{3}}$$

$$\Rightarrow x\sqrt{3} = 1$$

$$\Rightarrow x = \frac{1}{\sqrt{3}}$$

$$\Rightarrow x = \tan 30^\circ \quad \left[\because \tan 30^\circ = \frac{1}{\sqrt{3}} \right]$$

8. Option (B) is correct.

Explanation:

$$\because \sin \theta + \cos \theta = \sqrt{2}$$

Squaring on both sides, we get

$$\sin^2 \theta + \cos^2 \theta + 2 \sin \theta \cos \theta = 2$$

$$\Rightarrow 1 + 2 \sin \theta \cos \theta = 2$$

$$[\because \sin^2 \theta + \cos^2 \theta = 1]$$

$$\Rightarrow 2 \sin \theta \cos \theta = 1$$

$$\Rightarrow \sin \theta \cos \theta = \frac{1}{2}$$

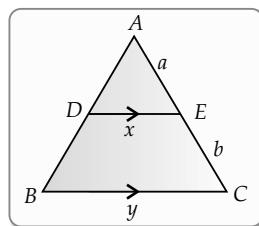
But $\tan \theta + \cot \theta = \frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta}$

$$= \frac{\sin^2 \theta + \cos^2 \theta}{\cos \theta \sin \theta}$$

$$= 2$$

9. Option (C) is correct.

Explanation:



As

$$DE \parallel BC$$

$$\therefore \frac{AE}{AC} = \frac{DE}{BC}$$

$$\Rightarrow \frac{a}{a+b} = \frac{x}{y}$$

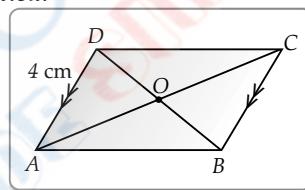
$$\Rightarrow x(a+b) = ay$$

$$\Rightarrow x = \frac{ay}{a+b}$$

[From BPT]

10. Option (C) is correct.

Explanation:



\therefore

$$AD \parallel BC$$

$$\text{and } \frac{AO}{OC} = \frac{DO}{OB} = \frac{1}{2}$$

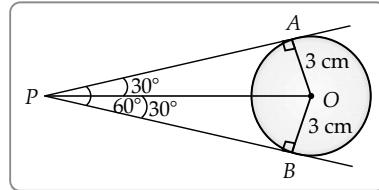
$$\therefore \frac{AD}{BC} = \frac{AO}{OC}$$

$$\Rightarrow \frac{4}{BC} = \frac{1}{2}$$

$$\Rightarrow BC = 8 \text{ cm}$$

11. Option (D) is correct.

Explanation:



Angle between two tangents = 60° (given)

\therefore Tangents are equally inclined to each other

$$\therefore \angle OPA = \angle OPB = 30^\circ$$

$$\text{and } \angle OAP = 90^\circ$$

(Angle between tangent and radius)

$$\text{In } \triangle PAO, \tan 30^\circ = \frac{OA}{AP}$$

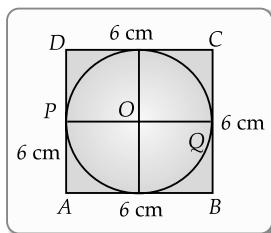
$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{3}{AP}$$

$$\Rightarrow AP = 3\sqrt{3}$$

Hence, the length of each tangent is $3\sqrt{3}$ cm

12. Option (D) is correct.

Explanation:



ABCD is a square of side 6 cm. PQ is a diameter of given circle such that

$$PQ = AB = 6 \text{ cm}$$

$$\therefore \text{Radius } (r) = \frac{\text{Diameter}}{2}$$

$$= \frac{6}{2} = 3 \text{ cm}$$

$$\begin{aligned} \text{Area of the circle} &= \pi r^2 \\ &= \pi(3)^2 = 9\pi \text{ cm}^2. \end{aligned}$$

13. Option (C) is correct.

Explanation:

$$\text{Given: } l + b + h = 6\sqrt{3} \text{ cm} \quad \dots(i)$$

and the length of its diagonal = $2\sqrt{3}$ cm

$$\text{i.e., } \sqrt{l^2 + b^2 + h^2} = 2\sqrt{3}$$

Squaring both sides, we get

$$l^2 + b^2 + h^2 = 12 \quad \dots(ii)$$

From eq. (i),

$$(l + b + h)^2 = (6\sqrt{3})^2$$

$$\Rightarrow l^2 + b^2 + h^2 + 2(lb + bh + hl) = 108$$

$$\Rightarrow 12 + 2(lb + bh + hl) = 108$$

[From eq. (iii)]

$$\Rightarrow 2(lb + bh + hl) = 96$$

Hence, total surface area of the cuboid is 96 cm^2 .

14. Option (B) is correct.

Explanation:

$$\because \text{mode} - \text{median} = 24 \quad (\text{given})$$

$$\therefore \text{mode} = 24 + \text{median}$$

$$\text{Since, mode} = 3 \text{ median} - 2 \text{ mean}$$

[By empirical relation]

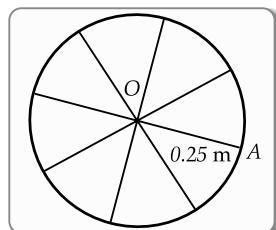
$$\therefore 24 + \text{median} = 3 \text{ median} - 2 \text{ mean}$$

$$\Rightarrow 2 \text{ median} - 2 \text{ mean} = 24$$

$$\Rightarrow \text{median} - \text{mean} = 12$$

15. Option (D) is correct.

Explanation:



Since, radius of wheel (r) = 0.25 m
Total distance covered by a circular wheel

$$= 11 \text{ km} = 11000 \text{ m}$$

i.e., No. of revolutions $\times 2\pi r = 11000$

$$\Rightarrow \text{No of revolutions} = \frac{11000 \times 7}{2 \times 22 \times 0.25}$$

$$= 7000$$

16. Option (B) is correct.

Explanation:

Class	Frequency (f)	c.f.
0 – 5	10	10
5 – 10	15	25
10 – 15	12	37
15 – 20	20	57
20 – 25	9	66
	$N = 66$	

$$\text{Since, } N = 66, \text{ then } \frac{N}{2} = 33$$

and cumulative frequency greater than or equal to 33 lies in class 10 – 15

So, median class is 10 – 15

∴ Lower limit of median class is 10 and highest frequency is 20 lie in class 15 – 20

So, modal class is 15 – 20.

∴ Lower limit of modal class is 15.

Hence, sum of lower limits of the median and modal class is $10 + 15 = 25$.

17. Option (C) is correct.

Explanation: Total possible outcomes, when two dice are thrown together = 6×6

$$\text{i.e., } n(s) = 36$$

Favourable outcomes are (1, 6), (2, 6), (3, 6), (4, 6), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)

i.e., P(6 will come up at least once)

$$= \frac{n(E)}{n(S)} = \frac{11}{36}$$

18. Option (A) is correct.

$$\text{Explanation: } 5 \tan \beta = 4$$

$$\Rightarrow \tan \beta = \frac{4}{5}$$

$$\therefore \frac{5 \sin \beta - 2 \cos \beta}{5 \sin \beta + 2 \cos \beta} = \frac{5 \tan \beta - 2}{5 \tan \beta + 2}$$

[dividing $\cos \beta$ by Nr. and Dr.]

$$= \frac{5 \times \frac{4}{5} - 2}{5 \times \frac{4}{5} + 2} = \frac{2}{6} = \frac{1}{3}$$

19. Option (B) is correct.

Explanation:

$$\text{Given: HCF} = 17$$

$$\text{and LCM} = 340$$

$$\therefore \text{Product of HCF and LCM} = 17 \times 340 = 5780.$$

Here, it is given that the product of two numbers is 5780

So, it is clear that the product of two numbers is equal to the product of HCF and LCM.

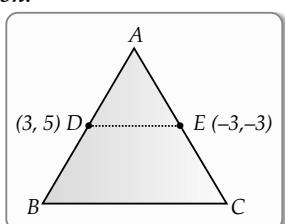
Hence, Assertion is true

For reason, HCF is always a factor of LCM which is true.

But it is not correct explanation of assertion.

20. Option (A) is correct.

Explanation:



For assertion: Distance between two points (x_1, y_1) and (x_2, y_2)

$$= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\begin{aligned} \therefore \text{Distance between } DE &= \sqrt{(-3 - 3)^2 + (-3 - 5)^2} \\ &= \sqrt{36 + 64} = \sqrt{100} \\ &= 10 \text{ units} \end{aligned}$$

By mid point theorem,

$$\begin{aligned} \text{distance between } BC &= 2 \times \text{distance between } DE \\ &= 2 \times 10 \\ &= 20 \text{ units.} \end{aligned}$$

So, assertion is true

For reason: By mid point theorem, the line joining the mid points of two sides of a triangle is parallel to the third side and equal to half of it.

So, reason is also true.

Section - B

21. Adding the two equations and dividing by 10, we get: $x + y = 10$ $\frac{1}{2}$

Subtracting the two equations and dividing by -2, we get: $x - y = 1$ $\frac{1}{2}$

Solving these two new equations, we get,

$$x = \frac{11}{2} \quad \frac{1}{2}$$

$$y = \frac{9}{2} \quad \frac{1}{2}$$

22. In $\triangle ABC$, $\angle 1 = \angle 2$

$$\therefore AB = BD \quad \dots(i) \quad \frac{1}{2}$$

$$\text{Given, } \frac{AD}{AE} = \frac{AC}{BD}$$

Using equation (i), we get

$$\frac{AD}{AE} = \frac{AC}{AB} \quad \dots(ii) \quad \frac{1}{2}$$

In $\triangle BAE$ and $\triangle CAD$, by equation (ii),

$$\frac{AC}{AB} = \frac{AD}{AE} \quad \frac{1}{2}$$

$$\angle A = \angle A \quad (\text{common})$$

$$\triangle BAE \sim \triangle CAD \quad \frac{1}{2}$$

[By SAS similarity criterion]

$$\angle PAO = \angle PBO = 90^\circ \quad \frac{1}{2}$$

(angle between radius and tangent)

$$\angle AOB = 105^\circ \quad \frac{1}{2}$$

(By angle sum property of a triangle)

$$\angle AQB = \frac{1}{2} \times 105^\circ = 52.5^\circ \quad 1$$

(Angle at the remaining part of the circle is half the angle subtended by the arc at the centre)

23. We know that, in 60 minutes, the tip of minute hand moves 360°

$$\text{In 1 minute, it will move} = \frac{360^\circ}{60} = 6^\circ \quad \frac{1}{2}$$

\therefore From 7 : 05 pm to 7 : 40 pm i.e. 35 min, it will move through

$$= 35 \times 6^\circ = 210^\circ \quad \frac{1}{2}$$

\therefore Area of swept by the minute hand in 35 min

= Area of sector with sectorial angle θ of 210° and radius of 6 cm

$$= \frac{210}{360} \times \pi \times 6^2 \quad \frac{1}{2}$$

$$= \frac{7}{12} \times \frac{22}{7} \times 6 \times 6$$

$$= 66 \text{ cm}^2 \quad \frac{1}{2}$$

OR

Let the measure of $\angle A$, $\angle B$, $\angle C$ and $\angle D$ be θ_1 , θ_2 , θ_3 and θ_4 respectively

$$\begin{aligned} \text{Required area} &= \text{Area of sector with centre A} \\ &\quad + \text{Area of sector with centre B} \\ &\quad + \text{Area of sector with centre C} \\ &\quad + \text{Area of sector with centre D} \quad \frac{1}{2} \end{aligned}$$

$$\begin{aligned} &= \frac{\theta_1}{360} \times \pi \times 7^2 + \frac{\theta_2}{360} \times \pi \times 7^2 + \frac{\theta_3}{360} \times \pi \times 7^2 \\ &\quad + \frac{\theta_4}{360} \times \pi \times 7^2 \quad \frac{1}{2} \end{aligned}$$

$$= \frac{(\theta_1 + \theta_2 + \theta_3 + \theta_4)}{360} \times \pi \times 7^2$$

$$= \frac{(360)}{360} \times \frac{22}{7} \times 7 \times 7 \quad \frac{1}{2}$$

(By angle sum property of a triangle)

$$= 154 \text{ cm}^2 \quad \frac{1}{2}$$

25. $\sin(A + B) = 1 = \sin 90^\circ$, so $A + B = 90^\circ$ $\dots(i) \quad \frac{1}{2}$

$$\cos(A - B) = \frac{\sqrt{3}}{2} = \cos 30^\circ, \text{ so } A - B = 30^\circ \quad \dots(ii) \quad \frac{1}{2}$$

$$\text{From (i) \& (ii)} \quad \angle A = 60^\circ \quad \frac{1}{2}$$

$$\text{And} \quad \angle B = 30^\circ \quad \frac{1}{2}$$

OR

$$\frac{\cos\theta - \sin\theta}{\cos\theta + \sin\theta} = \frac{1 - \sqrt{3}}{1 + \sqrt{3}}$$

Dividing the numerator and denominator of LHS by $\cos\theta$, we get

$$\frac{1 - \tan\theta}{1 + \tan\theta} = \frac{1 - \sqrt{3}}{1 + \sqrt{3}}$$

Which on simplification (or comparison) gives

$$\tan\theta = \sqrt{3}$$

$$\text{Or } \theta = 60^\circ$$

Section - C

- 26.** Let us assume $5 + 2\sqrt{3}$ is rational, then it must be in

the form of $\frac{p}{q}$ where p and q are co-prime integers and $q \neq 0$

$$\text{i.e., } 5 + 2\sqrt{3} = \frac{p}{q}$$

$$\text{So } \sqrt{3} = \frac{p - 5q}{2q} \quad \dots(\text{i}) \frac{1}{2}$$

Since $p, q, 5$ and 2 are integers and $q \neq 0$, RHS of equation (i) is rational. But LHS of (i) is $\sqrt{3}$ which is irrational. This is not possible.

This contradiction has arisen due to our wrong assumption that $5 + 2\sqrt{3}$ is rational. So, $5 + 2\sqrt{3}$ is irrational.

- 27.** Let α and β be the zeros of the polynomial $2x^2 - 5x - 3$

$$\text{Then } \alpha + \beta = \frac{5}{2} \quad \frac{1}{2}$$

$$\text{And } \alpha\beta = -\frac{3}{2} \quad \frac{1}{2}$$

Let 2α and 2β be the zeros $x^2 + px + q$

$$\text{Then } 2\alpha + 2\beta = -p \quad \frac{1}{2}$$

$$2(\alpha + \beta) = -p$$

$$2 \times \frac{5}{2} = -p$$

$$\text{So } p = -5 \quad \frac{1}{2}$$

$$\text{And } 2\alpha \times 2\beta = q \quad \frac{1}{2}$$

$$4\alpha\beta = q$$

$$\text{So } q = 4 \times -\frac{3}{2} \\ = -6 \quad \frac{1}{2}$$

- 28.** Let the actual speed of the train be x km/hr and let the actual time taken be y hours.

Distance covered is xy km

If the speed is increased by 6 km/hr, then time of journey is reduced by 4 hours i.e., when speed is $(x + 6)$ km/hr, time of journey is $(y - 4)$ hours.

\therefore Distance covered = $(x + 6)(y - 4)$

$$\Rightarrow xy = (x + 6)(y - 4)$$

$$\Rightarrow -4x + 6y - 24 = 0$$

$$\Rightarrow -2x + 3y - 12 = 0 \quad \dots(\text{i}) \frac{1}{2}$$

Similarly $xy = (x - 6)(y + 6)$

$$\Rightarrow 6x - 6y - 36 = 0$$

$$\Rightarrow x - y - 6 = 0 \quad \dots(\text{ii}) \frac{1}{2}$$

Solving (i) and (ii) we get $x = 30$ and $y = 24$ 1

Putting the values of x and y in equation (i), we obtain

$$\text{Distance} = (30 \times 24) \text{ km} = 720 \text{ km.}$$

Hence, the length of the journey is 720 km. \$\frac{1}{2}\$

OR

Let the number of chocolates in lot A be x

And let the number of chocolates in lot B be y

$$\therefore \text{total number of chocolates} = x + y$$

$$\text{Price of 1 chocolate} = \text{₹} \frac{2}{3} \text{ so for } x \text{ chocolates} = \frac{2}{3}x$$

and price of y chocolates at the rate of ₹ 1 per chocolate = y .

\therefore by the given condition

$$\frac{2}{3}x + y = 400$$

$$\Rightarrow 2x + 3y = 1200 \quad \dots(\text{i}) \frac{1}{2}$$

$$\text{Similarly } x + \frac{4}{5}y = 460$$

$$\Rightarrow 5x + 4y = 2300 \quad \dots(\text{ii}) \frac{1}{2}$$

Solving (i) and (ii) we get

$$x = 300 \text{ and } y = 200$$

$$\therefore x + y = 300 + 200 = 500 \quad \text{1}$$

So, Anuj had 500 chocolates. \$\frac{1}{2}\$

$$29. \text{ LHS : } \frac{\frac{\sin^3\theta}{\cos^3\theta} + \frac{\cos^3\theta}{\sin^3\theta}}{1 + \frac{\sin^2\theta}{\cos^2\theta} + \frac{\cos^2\theta}{\sin^2\theta}} \quad \frac{1}{2}$$

$$= \frac{\frac{\sin^3\theta}{\cos^3\theta}}{\frac{\cos^2\theta + \sin^2\theta}{\cos^2\theta}} + \frac{\frac{\cos^3\theta}{\sin^3\theta}}{\frac{\sin^2\theta + \cos^2\theta}{\sin^2\theta}} \\ = \frac{\sin^3\theta}{\cos^3\theta} + \frac{\cos^3\theta}{\sin^3\theta} \quad \frac{1}{2}$$

$$= \frac{\sin^3\theta + \cos^3\theta}{\cos\theta \sin\theta} \quad \frac{1}{2}$$

$$= \frac{(\sin^2\theta + \cos^2\theta)^2 - 2\sin^2\theta \cos^2\theta}{\cos\theta \sin\theta} \quad \frac{1}{2}$$

$$= \frac{1 - 2\sin^2\theta \cos^2\theta}{\cos\theta \sin\theta} \quad \frac{1}{2}$$

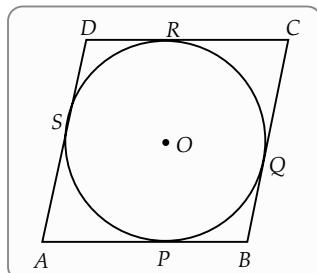
$$= \frac{1}{\cos \theta \sin \theta} - \frac{2 \sin^2 \theta \cos^2 \theta}{\cos \theta \sin \theta}$$

$$= \sec \theta \operatorname{cosec} \theta - 2 \sin \theta \cos \theta$$

= RHS

1/2

30.



Let ABCD be the rhombus circumscribing the circle with centre O, such that AB, BC, CD and DA touch the circle at points P, Q, R and S respectively.

We know that the tangents drawn to a circle from an exterior point are equal in length.

∴

$$AP = AS \quad \dots(1)$$

$$BP = BQ \quad \dots(2)$$

$$CR = CQ \quad \dots(3)$$

$$DR = DS \quad \dots(4) \quad 1$$

Adding (1), (2), (3) and (4) we get

$$AP + BP + CR + DR = AS + BQ + CQ + DS$$

$$(AP + BP) + (CR + DR) = (AS + DS) + (BQ + CQ)$$

$$\therefore AB + CD = AD + BC \quad \dots(5) \quad 1$$

Since

$$AB = DC \text{ and } AD = BC$$

(opposite sides of parallelogram ABCD) 1/2

putting in (5) we get, $2AB = 2AD$

or

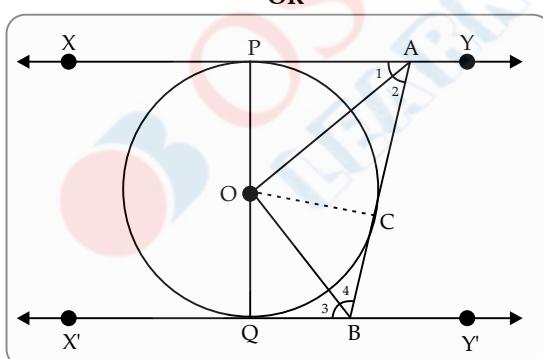
$$AB = AD.$$

∴

$$AB = BC = DC = AD$$

Since a parallelogram with equal adjacent sides is a rhombus, so ABCD is a rhombus 1/2

OR



Join OC

In $\triangle OPA$ and $\triangle OCA$

$$OP = OC \quad (\text{radii of same circle})$$

$$PA = CA \quad 1$$

(length of two tangents from an external point)

$$AO = AO \quad (\text{Common})$$

Therefore,

$$\triangle OPA \cong \triangle OCA \quad 1/2$$

(By SSS congruency criterion)

Hence, $\angle 1 = \angle 2$ (CPCT) 1/2

Similarly $\angle 3 = \angle 4$

$$\angle PAB + \angle QBA = 180^\circ \quad 1/2$$

(co interior angles are supplementary as XY || X'Y')

$$2\angle 2 + 2\angle 4 = 180^\circ$$

$$\angle 2 + \angle 4 = 90^\circ \quad \dots(1) \quad 1/2$$

$$\angle 2 + \angle 4 + \angle AOB = 180^\circ \quad (\text{Angle sum property})$$

Using (1), we get, $\angle AOB = 90^\circ$

$$31. \text{ (i) } P(\text{At least one head}) = \frac{3}{4} \quad 1$$

$$\text{(ii) } P(\text{At most one tail}) = \frac{3}{4} \quad 1$$

$$\text{(iii) } P(\text{A head and a tail}) = \frac{2}{4} = \frac{1}{2} \quad 1$$

Section - D

32. Let the time taken by larger pipe alone to fill the tank = x hours 1/2

Therefore, the time taken by the smaller pipe = $x + 10$ hours

Water filled by larger pipe running for 4 hours

$$= \frac{4}{x} \text{ litres}$$

Water filled by smaller pipe running for 9 hours

$$= \frac{9}{x+10} \text{ litres}$$

$$\text{We know that } \frac{4}{x} + \frac{9}{x+10} = \frac{1}{2} \quad 1$$

Which on simplification gives:

$$x^2 - 16x - 80 = 0$$

$$x^2 - 20x + 4x - 80 = 0$$

$$x(x - 20) + 4(x - 20) = 0$$

$$(x + 4)(x - 20) = 0$$

$$x = -4, 20 \quad 1$$

x cannot be negative.

$$\text{Thus, } x = 20 \quad 1/2$$

$$x + 10 = 30 \quad 1/2$$

Larger pipe would alone fill the tank in 20 hours and smaller pipe would fill the tank alone in 30 hours. 1/2

OR

Let the usual speed of plane be x km/hr 1/2

and the reduced speed of the plane be $(x - 200)$ km/hr

$$\text{Distance} = 600 \text{ km} \quad [\text{Given}]$$

According to the question,

(time taken at reduced speed) - (Schedule time)

$$= 30 \text{ minutes}$$

$$= 0.5 \text{ hours.} \quad 1$$

$$\frac{600}{x-200} - \frac{600}{x} = \frac{1}{2} \quad 1$$

Which on simplification gives:

$$x^2 - 200x - 240000 = 0$$

$$x^2 - 600x + 400x - 240000 = 0$$

$$x(x - 600) + 400(x - 600) = 0$$

$$(x - 600)(x + 400) = 0$$

$$x = 600 \text{ or } x = -400 \quad 1$$

But speed cannot be negative. $\frac{1}{2}$

\therefore The usual speed is 600 km/hr and $\frac{1}{2}$

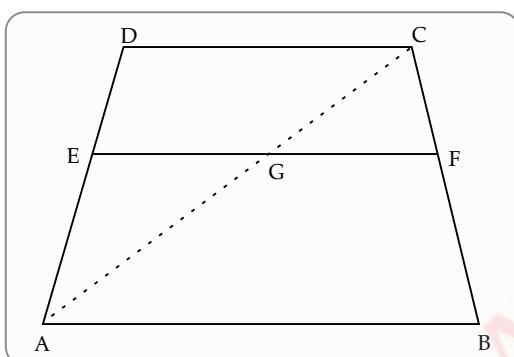
the scheduled duration of the flight is $\frac{600}{600} = 1$ hour $\frac{1}{2}$

33. For the Theorem:

Given, To prove, Construction and figure

$1\frac{1}{2}$

Proof



Let ABCD be a trapezium $DC \parallel AB$ and EF is a line parallel to AB and hence to DC.

$$\text{To prove: } \frac{DE}{EA} = \frac{CF}{FB}$$

Construction: Join AC, meeting EF in G.

Proof: In $\triangle ABC$, we have

$$GF \parallel AB$$

$$\frac{CG}{GA} = \frac{CF}{FB} \quad [\text{By BPT}] \dots (1) \frac{1}{2}$$

In $\triangle ADC$, we have

$$EG \parallel DC \quad (EF \parallel AB \text{ & } AB \parallel DC)$$

$$\frac{DE}{EA} = \frac{CG}{GA} \quad [\text{By BPT}] \dots (2) \frac{1}{2}$$

From (1) & (2), we get,

$$\frac{DE}{EA} = \frac{CF}{FB} \quad \frac{1}{2}$$

34. Radius of the base of cylinder (r) = 2.8 m = Radius of the base of the cone (r)

Height of the cylinder (h) = 3.5 m

Height of the cone (H) = 2.1 m.

Slant height of conical part (l) = $\sqrt{r^2 + H^2}$

$$= \sqrt{(2.8)^2 + (2.1)^2}$$

$$= \sqrt{7.84 + 4.41}$$

$$= \sqrt{12.25}$$

1

$$= 3.5 \text{ m}$$

1

Area of canvas used to make tent

$$= \text{CSA of cylinder} + \text{CSA of cone}$$

1

$$= 2 \times \pi \times 2.8 \times 3.5 + \pi \times 2.8 \times 3.5$$

1

$$= 61.6 + 30.8$$

1

$$= 92.4 \text{ m}^2$$

1

Cost of 1500 tents at ₹ 120 per sq.m

$$= 1500 \times 120 \times 92.4$$

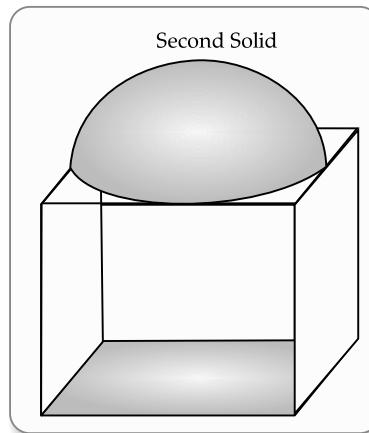
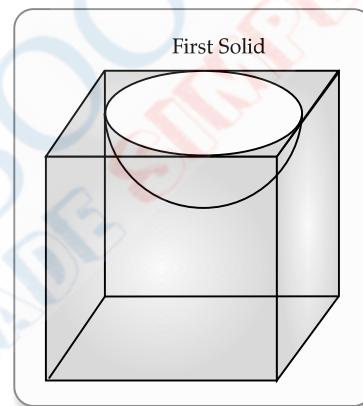
$$= ₹ 16,632,000$$

Share of each school to set up the tents

$$= \frac{16632000}{50}$$

$$= ₹ 332,640$$

OR



(i) SA for first new solid (S_1):

$$6 \times 7 \times 7 + 2\pi \times 3.5^2 - \pi \times 3.5^2$$

$$= 294 + 77 - 38.5$$

$$= 332.5 \text{ cm}^2$$

1

SA for second new solid (S_2):

$$6 \times 7 \times 7 + 2\pi \times 3.5^2 - \pi \times 3.5^2$$

$$= 294 + 77 - 38.5$$

$$= 332.5 \text{ cm}^2$$

1

So

$$S_1 : S_2 = 1 : 1$$

(ii) Volume for first new solid (V_1)

$$= 7 \times 7 \times 7 - \frac{2}{3}\pi \times 3.5^3$$

$$= 343 - \frac{539}{6} = \frac{1519}{6} \text{ cm}^3 \quad 1$$

Volume for second new solid (V_2)

$$= 7 \times 7 \times 7 + \frac{2}{3}\pi \times 3.5^3$$

$$= 343 + \frac{539}{6} = \frac{2597}{6} \text{ cm}^3 \quad 1$$

35. Median = 525, so Median Class = 500 – 600 ½

Class interval	Frequency	Cumulative Frequency
0–100	2	2
100–200	5	7
200–300	x	$7 + x$
300–400	12	$19 + x$
400–500	17	$36 + x$
500–600	20	$56 + x$
600–700	y	$56 + x + y$
700–800	9	$65 + x + y$
800–900	7	$72 + x + y$
900–1000	4	$76 + x + y$

1½

$$76 + x + y = 100$$

$$\Rightarrow x + y = 24 \quad \dots(i) \quad 1$$

$$\text{Median} = l + \frac{\frac{n}{2} - cf}{f} \times h \quad \frac{1}{2}$$

Since, $l = 500$, $h = 100$, $cf = 36 + x$ and $n = 100$
Therefore, putting the value in the Median formula,
we get;

$$525 = 500 + \frac{50 - (36 + x)}{20} \times 100 \quad \frac{1}{2}$$

so

$$x = 9$$

$$y = 24 - x \quad (\text{from eq. (i)})$$

$$y = 24 - 9 = 15 \quad \frac{1}{2}$$

Therefore, the value of $x = 9$ and $y = 15$. ½

36. (i) B(1, 2), F(-2, 9)

$$BF^2 = (-2 - 1)^2 + (9 - 2)^2$$

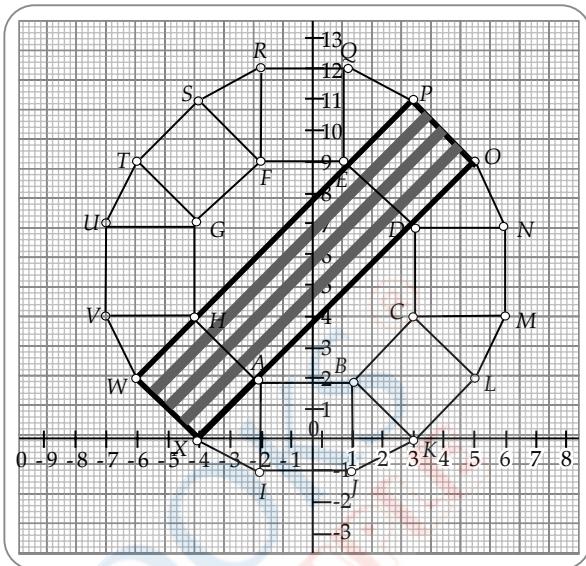
$$= (-3)^2 + (7)^2$$

$$= 9 + 49$$

$$= 58$$

So, $BF = \sqrt{58}$ units 1

(ii)

 $W(-6, 2), X(-4, 0), O(5, 9), P(3, 11)$ Clearly $WXOP$ is a rectanglePoint of intersection of diagonals of a rectangle is the mid point of the diagonals. So the required point is mid point of WO or XP

$$= \left(\frac{-6+5}{2}, \frac{2+9}{2} \right)$$

$$= \left(\frac{-1}{2}, \frac{11}{2} \right) \quad \frac{1}{2}$$

(iii) A(-2, 2), G(-4, 7)

Let the point on y -axis be $Z(0, y)$

$$AZ^2 = GZ^2$$

$$(0 + 2)^2 + (y - 2)^2 = (0 + 4)^2 + (y - 7)^2$$

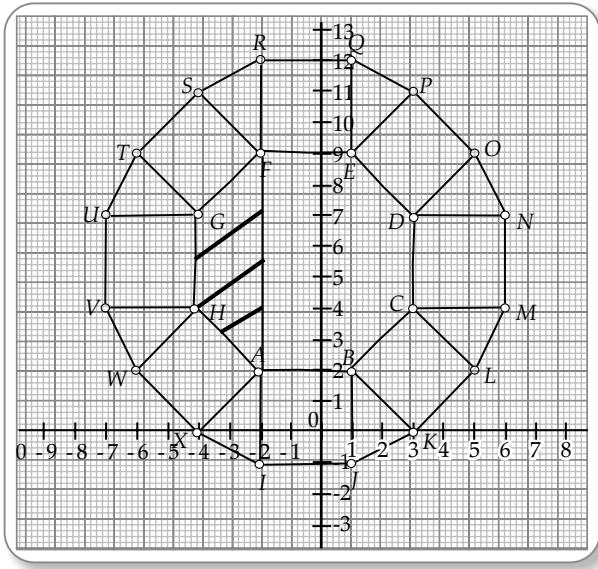
$$(2)^2 + y^2 + 4 - 4y = (4)^2 + y^2 + 49 - 14y$$

$$8 - 4y = 65 - 14y$$

$$10y = 57$$

So, $y = 5.7$ i.e. the required point is $(0, 5.7)$

OR



$$A(-2, 2), F(-2, 9), G(-4, 7), H(-4, 4)$$

$$\text{Clearly } GH = 7 - 4 = 3 \text{ units}$$

$$AF = 9 - 2 = 7 \text{ units}$$

So, height of the trapezium $AFGH = 2$ units

$$\text{So, area of } AFGH = \frac{1}{2} (AF + GH) \times \text{height}$$

$$= \frac{1}{2} (7 + 3) \times 2$$

$$= 10 \text{ sq. units}$$

- 37.** (i) Since each row is increasing by 10 seats, so it is an AP with first term $a = 30$, and common difference $d = 10$.

So number of seats in 10th row

$$= a_{10}$$

$$= a + 9d$$

$$= 30 + 9 \times 10 = 120$$

$$(ii) S_n = \frac{n}{2} (2a + (n-1)d)$$

$$1500 = \frac{n}{2} (2 \times 30 + (n-1)10)$$

$$3000 = 50n + 10n^2$$

$$n^2 + 5n - 300 = 0$$

$$n^2 + 20n - 15n - 300 = 0$$

$$(n+20)(n-15) = 0$$

Rejecting the negative value, $n = 15$

OR

No. of seats already put up to the 10th row = S_{10}

$$S_{10} = \frac{10}{2} \{2 \times 30 + (10-1)10\}$$

$$= 5(60 + 90) = 750$$

So, the number of seats still required to be put are $1500 - 750 = 750$

- (iii) If no. of rows = 17

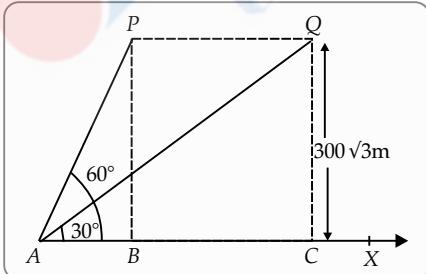
then the middle row is the 9th row

$$a_8 = a + 8d$$

$$= 30 + 80$$

$$= 110 \text{ seats}$$

38. (i)



1

P and Q are the two positions of the plane flying at a height of $3000\sqrt{3}$ m.

A is the point of observation.

$$(ii) \text{ In } \triangle PAB, \tan 60^\circ = \frac{PB}{AB}$$

$$\text{Or } \sqrt{3} = \frac{3000\sqrt{3}}{AB}$$

$$AB = 3000 \text{ m}$$

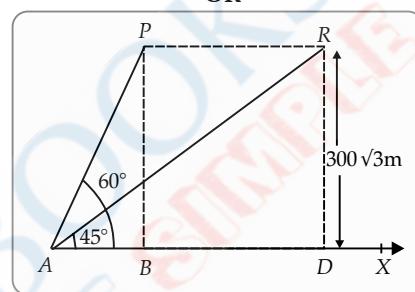
$$\tan 30^\circ = \frac{QC}{AC}$$

$$\frac{1}{\sqrt{3}} = \frac{3000\sqrt{3}}{AC}$$

$$AC = 9000 \text{ m}$$

$$\text{distance covered} = 9000 - 3000 = 6000 \text{ m.}$$

OR



$$\text{In } \triangle PAB, \tan 60^\circ = \frac{PB}{AB}$$

$$\sqrt{3} = \frac{3000\sqrt{3}}{AB}$$

$$AB = 3000 \text{ m}$$

$$\tan 45^\circ = \frac{RD}{AD}$$

$$1 = \frac{3000\sqrt{3}}{AD}$$

$$AD = 3000\sqrt{3} \text{ m}$$

$$\text{distance covered} = 3000\sqrt{3} - 3000$$

$$= 3000(\sqrt{3} - 1) \text{ m}$$

$$\text{speed} = \frac{6000}{30}$$

$$= 200 \text{ m/s}$$

$$= 200 \times \frac{3600}{1000}$$

$$= 720 \text{ km/hr}$$

$$\text{Alternatively: speed} = \frac{3000(\sqrt{3} - 1)}{15(\sqrt{3} - 1)}$$

$$= 200 \text{ m/s}$$

$$= 200 \times \frac{3600}{1000}$$

$$= 720 \text{ km/hr}$$

■ ■ ■

Sample Question Paper-1

**(Sample Question Paper issued by
Board dated 16th Sep, 2022)**

SCIENCE (086)

Class-10

SOLVED

Time Allowed : 3 hours

Maximum Marks : 80

General Instructions:

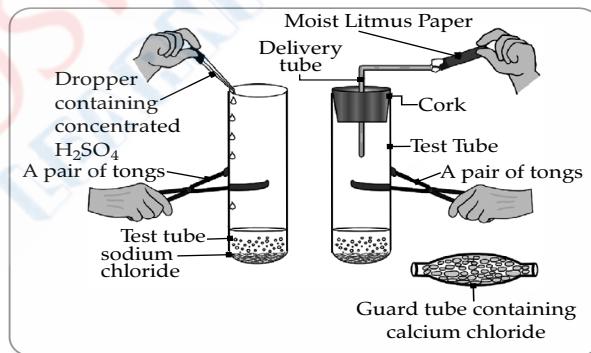
- i. This question paper consists of 39 questions in 5 sections.
 - ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
 - iii. **Section A** consists of 20 objective type questions carrying 01 mark each.
 - iv. **Section B** consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
 - v. **Section C** consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words
 - vi. **Section D** consists of 3 Long Answer type questions carrying 05 marks each. Answers to these questions should be in the range of 80 to 120 words.
 - vii. **Section E** consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

Section-A

20 Marks

(Select and write one most appropriate option out of the four options given for each of the questions 1 – 20)

- 1.** The change in colour of the moist litmus paper in the given set up is due to

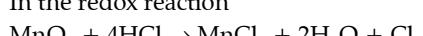


- (i) presence of acid
(ii) presence of base
(iii) presence of $\text{H}^+(\text{aq})$ in the solution
(iv) presence of Litmus which acts as an indicator
(A) (i) and (ii)

[1]

3. In the following:

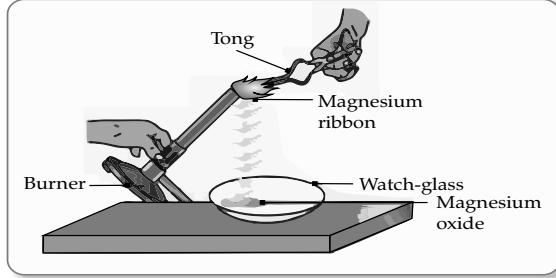
[1]



- (A) $\text{MnO}_2 + 4\text{HCl} \rightarrow \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$
 (B) MnO_2 is reduced to MnCl_2 & HCl is oxidised to H_2O

- (C) MnO_2 is oxidized to MnCl_2 & HCl is reduced to Cl_2
 (D) MnO_2 is oxidized to MnCl_2 & HCl is reduced to H_2O

3.



Which of the following is the correct observation of the reaction shown in the above set up?

[1]

- (A) Brown powder of Magnesium oxide is formed.
 (B) Colourless gas which turns lime water milky is evolved.
 (C) Magnesium ribbon burns with brilliant white light.
 (D) Reddish brown gas with a smell of burning Sulphur has evolved.

4. With the reference to four gases CO_2 , CO , Cl_2 and O_2 , which one of the options in the table is correct?

Option	Acidic oxide	Used in treatment of water	Product of respiration	Product of incomplete combustion
(A)	CO	Cl_2	O_2	CO
(B)	CO_2	Cl_2	CO_2	CO
(C)	CO_2	O_2	O_2	CO_2
(D)	CO	O_2	CO_2	CO_2

[1]

5. On placing a copper coin in a test tube containing green ferrous sulphate solution, it will be observed that the ferrous sulphate solution

[1]

- (A) turns blue, and a grey substance is deposited on the copper coin.
 (B) turns colourless and a grey substance is deposited on the copper coin.
 (C) turns colourless and a reddish-brown substance is deposited on the copper coin.
 (D) remains green with no change in the copper coin.

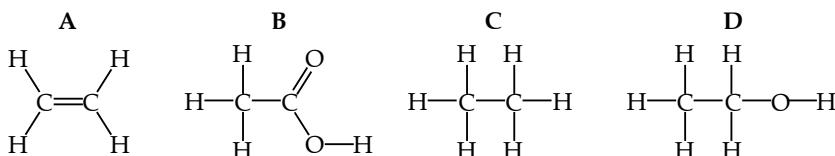
6. Anita added a drop each of diluted acetic acid and diluted hydrochloric acid on pH paper and compared the colors. Which of the following is the correct conclusion?

[1]

- (A) pH of acetic acid is more than that of hydrochloric acid.
 (B) pH of acetic acid is less than that of hydrochloric acid.
 (C) Acetic acid dissociates completely in aqueous solution.
 (D) Acetic acid is a strong acid

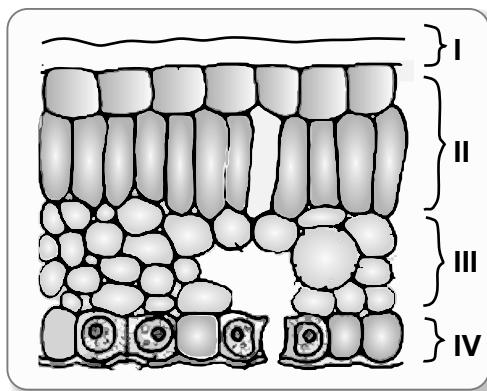
7. The formulae of four organic compounds are shown below. Choose the correct option

[1]

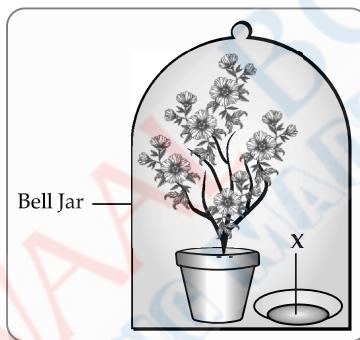


- (A) A and B are unsaturated hydrocarbons
 (B) C and D are saturated hydrocarbons
 (C) Addition of hydrogen in presence of catalyst changes A to C
 (D) Addition of potassium permanganate changes B to D

8. In the given transverse section of the leaf identify the layer of cells where maximum photosynthesis occurs. [1]

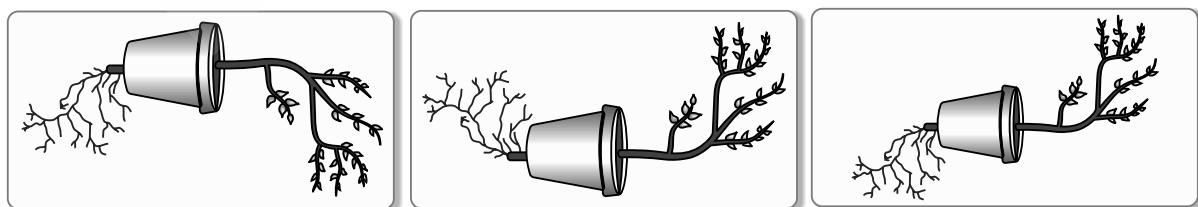


9. Observe the experimental setup shown below. Name the chemical indicated as 'X' that can absorb the gas which is evolved as a byproduct of respiration. [1]



- 10.** If a tall pea plant is crossed with a pure dwarf pea plant then, what percentage of F_1 and F_2 generation respectively will be tall? [1]

- 11.** Observe the three figures given below. Which of the following depicts tropic movements appropriately? [1]

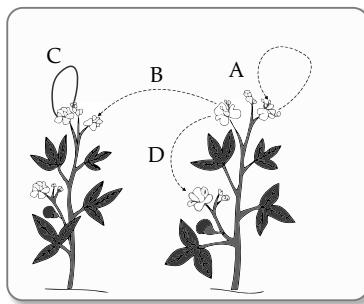


- (A) (B) (C)

(B) A and C

(D) C only

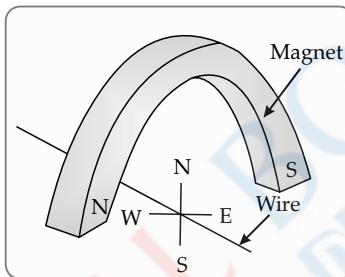
- 12.** The diagram shown below depicts pollination. Choose the options that will show a maximum variation in the offspring. [1]



- (A) A, B and C
(C) B, C and D
- (B) B and D
(D) A and C

13. A complete circuit is left on for several minutes, causing the connecting copper wire to become hot. As the temperature of the wire increases, the electrical resistance of the wire. [1]
 (A) decreases.
 (B) remains the same.
 (C) increases.
 (D) increases for some time and then decreases.

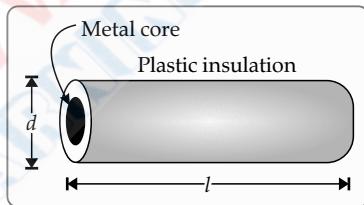
14. A copper wire is held between the poles of a magnet.



The current in the wire can be reversed. The pole of the magnet can also be changed over. In how many of the four directions shown can the force act on the wire? [1]

- (A) 1
(C) 3
- (B) 2
(D) 4

- 15.



Plastic insulation surrounds a wire having diameter d and length l as shown above. A decrease in the resistance of the wire would be produced by an increase in the [1]

- (A) length l of the wire
(C) temperature of the wire
- (B) diameter d of the wire
(D) thickness of the plastic insulation

16. Which of the following pattern correctly describes the magnetic field around a long straight wire carrying current? [1]

- (A) straight lines perpendicular to the wire.
(C) radial lines originating from the wire.
- (B) straight lines parallel to the wire.
(D) concentric circles centred around the wire.

Q. no 17 to 20 are Assertion - Reasoning based questions.

These consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- (A) Both A and R are true and R is the correct explanation of A
(B) Both A and R are true and R is not the correct explanation of A
(C) A is true but R is false
(D) A is False but R is true

17. Assertion: Silver bromide decomposition is used in black and white photography.

Reason: Light provides energy for this exothermic reaction.

[1]

18. Assertion: Height in pea plants is controlled by efficiency of enzymes and is thus genetically controlled.

Reason: Cellular DNA is the information source for making proteins in the cell. [1]

- 19. Assertion:** Amphibians can tolerate mixing of oxygenated and deoxygenated blood.

Reason: Amphibians are animals with two chambered heart. [1]

- 20. Assertion:** On freely suspending a current – carrying solenoid, it comes to rest in Geographical N-S direction.

Reason : One end of current carrying straight solenoid behaves as a North pole and the other end as a South pole, just like a bar magnet. [1]

Section-B

12 Marks

(Q. no. 21 to 26 are very short answer questions.)

- 21.** A clear solution of slaked lime is made by dissolving $\text{Ca}(\text{OH})_2$ in an excess of water. This solution is left exposed to air. The solution slowly goes milky as a faint white precipitate forms. Explain why a faint white precipitate forms, support your response with the help of a chemical equation. [2]

OR

Keerti added dilute Hydrochloric acid to four metals and recorded her observations as shown in the table given below:

Metal	Gas Evolved
Copper	Yes
Iron	Yes
Magnesium	No
Zinc	Yes

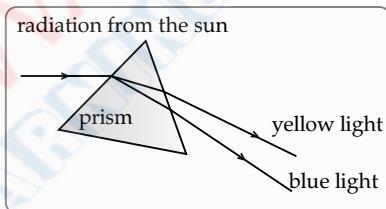
Select the correct observation(s) and give chemical equation(s) of the reaction involved. [2]

- 22.** How is the mode of action in beating of the heart different from reflex actions? Give four examples. [2]

- 23.** Patients whose gallbladder are removed are recommended to eat less oily food. Why? [2]

- 24.** Name the substances other than water, that are reabsorbed during urine formation. What are the two parameters that decide the amount of water that is reabsorbed in the kidney? [2]

- 25.**



State the phenomena observed in the above diagram. Explain with reference to the diagram, which of the two lights mentioned above will have the higher wavelength? [2]

OR

How will you use two identical prisms so that a narrow beam of white light incident on one prism emerges out of the second prism as white light? Draw the diagram. [2]

- 26.** A lot of waste is generated in neighbourhood. However, almost all of it is biodegradable. What impact will it have on the environment or human health? [2]

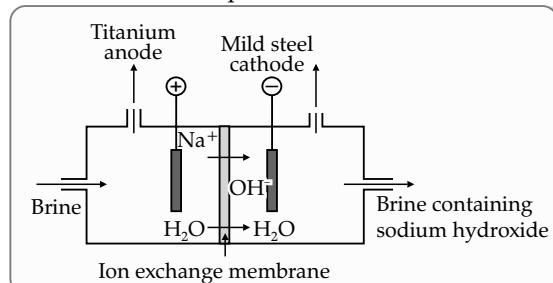
Section-C

(Q.no. 27 to 33 are short answer questions.)



Identify the types of reaction mentioned above in (i) and (ii). Give one example for each type in the form of a balanced chemical equation. [3]

28.



- (a) Identify the gasses evolved at the anode and cathode in the above experimental set up.
- (b) Name the process that occurs. Why is it called so?
- (c) Illustrate the reaction of the process with the help of a chemical equation. [3]

29. The leaves of a plant were covered with aluminium foil, how would it affect the physiology of the plant?

OR

How is lymph an important fluid involved in transportation? If lymphatic vessels get blocked, how would it affect the human body? Elaborate. [3]

30. Rohit wants to have an erect image of an object using a converging mirror of focal length 40 cm.

- (a) Specify the range of distance where the object can be placed in front of the mirror. Justify.
- (b) Draw a ray diagram to show image formation in this case.
- (c) State one use of the mirror based on the above kind of image formation. [3]

31. (a) A lens of focal length 5 cm is being used by Debashree in the laboratory as a magnifying glass. Her least distance of distinct vision is 25 cm.

- (i) What is the magnification obtained by using the glass?
- (ii) She keeps a book at a distance 10 cm from her eyes and tries to read. She is unable to read. What is the reason for this?
- (b) Ravi kept a book at a distance of 10 cm from the eyes of his friend Hari. Hari is not able to read anything written in the book. Give reasons for this? [3]

32. A student fixes a white sheet of paper on a drawing board. He places a bar magnet in the centre and sprinkles some iron filings uniformly around the bar magnet. Then he taps gently and observes that iron filings arrange themselves in a certain pattern.

- (a) Why do iron filings arrange themselves in a particular pattern?
- (b) Which physical quantity is indicated by the pattern of field lines around the bar magnet?
- (c) State any two properties of magnetic field lines. [3]

OR

A compass needle is placed near a current carrying wire. State your observations for the following cases and give reasons for the same in each case-

- (a) Magnitude of electric current in wire is increased.
- (b) The compass needle is displaced away from the wire. [3]

33. Why is damage to the ozone layer a cause for concern? What are its causes and what steps are being taken to limit this damage? [3]

Section-D

(34 to 36 are Long answer questions.)

34. Shristi heated Ethanol with a compound A in presence of a few drops of concentrated sulphuric acid and observed a sweet smelling compound B is formed. When B is treated with sodium hydroxide it gives back Ethanol and a compound C.

- (a) Identify A and C
- (b) Give one use each of compounds A and B.
- (c) Write the chemical reactions involved and name the reactions. [5]

OR

- (a) What is the role of concentrated Sulphuric acid when it is heated with Ethanol at 443 K. Give the reaction involved.

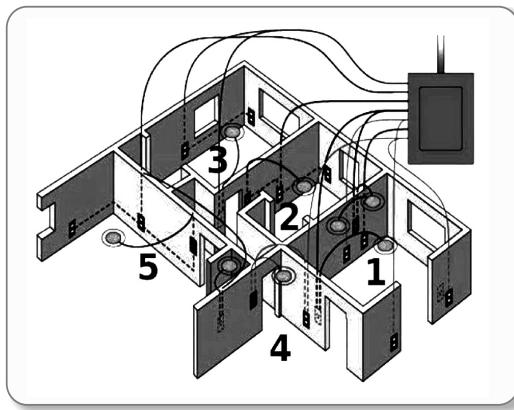
- (b) Reshu by mistake forgot to label the two test tubes containing Ethanol and Ethanoic acid. Suggest an experiment to identify the substances correctly? Illustrate the reactions with the help of chemical equations [5]

- 35.** (a) Why is it not possible to reconstruct the whole organism from a fragment in complex multicellular organisms?
 (b) Sexual maturation of reproductive tissues and organs are necessary link for reproduction. Elucidate. [5]

OR

- (a) How are variations useful for species if there is drastic alteration in the niches?
 (b) Explain how the uterus and placenta provide necessary conditions for proper growth and development of the embryo after implantation? [5]

36.



The diagram above is a schematic diagram of a household circuit. The house shown in the above diagram has 5 usable spaces where electrical connections are made. For this house, the mains have a voltage of 220 V and the net current coming from the mains is 22A.

- (a) What is the mode of connection to all the spaces in the house from the mains?
 (b) The spaces 5 and 4 have the same resistance and spaces 3 and 2 have respective resistances of 20Ω and 30Ω . Space 1 has a resistance double that of space 5. What is the net resistance for space 5.
 (c) What is the current in space 3?
 (d) What should be placed between the main connection and the rest of the house's electrical appliances to save them from accidental high electric current? [5]

Section-E

(Q.no. 37 to 39 are case - based/data -based questions with 2 to 3 short sub - parts. Internal choice is provided in one of these sub-parts.)

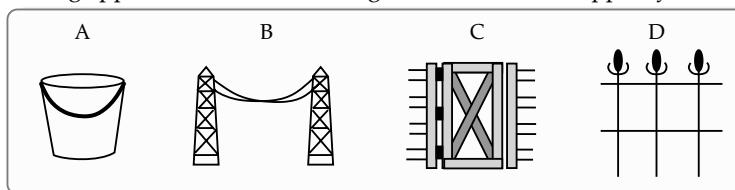
- 37.** Two students decided to investigate the effect of water and air on iron object under identical experimental conditions. They measured the mass of each object before placing it partially immersed in 10 mL of water. After a few days, the object were removed, dried and their masses were measured. The table shows their results.

Student	Object	Mass of Object before Rusting in g	Mass of the coated object in g
A	Nail	3.0	3.15
B	Thin plate	6.0	6.33

- (a) What might be the reason for the varied observations of the two students?
 (b) In another set up the students coated iron nails with zinc metal and noted that, iron nails coated with zinc prevents rusting. They also observed that zinc initially acts as a physical barrier, but an extra advantage of using zinc is that it continues to prevent rusting even if the layer of zinc is damaged. Name this process of rust prevention and give any two other methods to prevent rusting. [4]

OR

In which of the following applications of Iron, rusting will occur most? Support your answer with valid reason.



A - Iron Bucket electroplated with Zinc

B - Electricity cables having iron wires covered with aluminium

C - Iron hinges on a gate

D - Painted iron fence

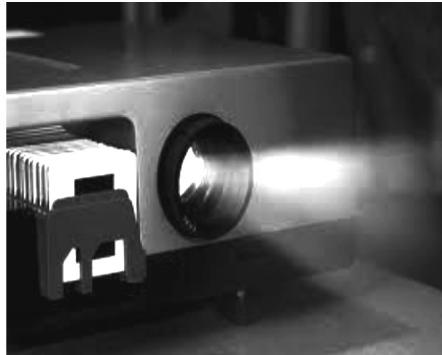
- 38.** Pooja has green eyes while her parents and brother have black eyes. Pooja's husband Ravi has black eyes while his mother has green eyes and father has black eyes. [4]

- On the basis of the above given information, is the green eye colour a dominant or recessive trait? Justify your answer.
- What is the possible genetic makeup of Pooja's brother's eye colour?
- What is the probability that the offspring of Pooja and Ravi will have green eyes? Also, show the inheritance of eye colour in the offspring with the help of a suitable cross.

OR

50% of the offspring of Pooja's brother are green eyed. With help of cross show how this is possible.

- 39.**



The above images are that of a specialised slide projector. Slides are small transparencies mounted in sturdy frames ideally suited to magnification and projection, since they have a very high resolution and a high image quality. There is a tray where the slides are to be put into a particular orientation so that the viewers can see the enlarged erect images of the transparent slides. This means that the slides will have to be inserted upside down in the projector tray.

To show her students the images of insects that she investigated in the lab, Mrs. Iyer brought a slide projector. Her slide projector produced a 500 times enlarged and inverted image of a slide on a screen 10 m away. [4]

- Based on the text and data given in the above paragraph, what kind of lens must the slide projector have?
- If v is the symbol used for image distance and u for object distance then with one reason state what will be the sign for $\frac{v}{u}$ in the given case?
- A slide projector has a convex lens with a focal length of 20 cm. The slide is placed upside down 21 cm from the lens. How far away should the screen be placed from the slide projector's lens so that the slide is in focus?

OR

When a slide is placed 15 cm behind the lens in the projector, an image is formed 3 m in front of the lens. If the focal length of the lens is 14 cm, draw a ray diagram to show image formation. (not to scale)



SOLUTIONS

Sample Question Paper-1

Marking Scheme-2022-23 (Issued by Board)

SCIENCE (086)

SECTION-A

1. Option (C) is correct. [1]

Explanation: The change in colour of the moist litmus paper in the given set up is due to presence of H^+ (aq) in the solution. Sulphuric acid (H_2SO_4) is a strong acid because when it is dissolved in an aqueous solution, it completely dissociates into H^+ and HSO_4^- ions in the solution.

2. Option (B) is correct. [1]

Explanation : (i) Here HCl is oxidised to Cl_2 and MnO_2 is reduced to $MnCl_2$.

(ii) The reaction in which oxygen is either gained or hydrogen is lost by a substance is called oxidation reaction.

The reaction in which hydrogen is gained or oxygen is lost by a substance is called reduction reaction.

3. Option (C) is correct. [1]

Explanation : When a piece of magnesium ribbon is ignited, light and heat are produced.

4. Option (B) is correct. [1]

Explanation : Option (b) is correct with respect to four given gases.

5. Option (D) is correct. [1]

Explanation: Iron is more reactive than copper. Hence, Cu will not displace iron from iron sulphate, hence, no reaction will take place.

6. Option (A) is correct. [1]

Explanation: The concentration of free hydrogen ions in the acetic acid solution was less than in the hydrochloric acid solution and so the pH was somewhat higher for acetic acid than for hydrochloric acid.

7. Option (C) is correct. [1]

Explanation: The name of the reaction that converts alkenes (A) into alkanes (C) is hydrogenation. The conditions which are necessary for this reaction are the presence of a catalyst Ni and the temperature should be 423 K.

8. Option (B) is correct. [1]

Explanation : The palisade mesophyll layer is made up of closely-packed, elongated cells located just below the upper epidermis. They contain chloroplasts and carry out most of the photosynthesis.

9. Option (B) is correct. [1]

Explanation: Potassium hydroxide (KOH) absorbs all the available carbon dioxide in the bell jar.

10. Option (D) is correct. [1]

Explanation: When a pure tall plant (TT) is crossed with a pure dwarf plant(tt), in the F_1 generation, tall plants are formed (Tt). When F_1 plant is subjected to self pollination, in the F_2 generation, 3 tall plants and 1 dwarf plants are formed. In the one homozygous tall plant (TT), 2 heterozygous tall plants (Tt), one homozygous dwarf plant (tt) are formed. phenotypic ratio is 3:1, genotypic ratio is 1:2:1.

11. Option (D) is correct. [1]

Explanation: The figure "C" depicts the phenomenon of geotropism appropriately. Geotropism is the growth of the parts of plants in response to the force of gravity. The upward growth of plant shoots is an instance of negative geotropism while the downward growth of roots is positive geotropism.

12. Option (B) is correct. [1]

Explanation: The cross-pollination is defined as the deposition of pollen grains from a flower to the stigma of another flower. It enables the fusion of two genetically distinct plant characters, belonging to the same species. Therefore, it introduces genetic recombination and variations in plants due to the fusion of gametes that are genetically distinct.

13. Option (C) is correct. [1]

Explanation: A complete circuit is left on for several minutes, causing the connecting copper wire to become hot. As the temperature of the wire increases, the electrical resistance of the wire also increases.

- 14. Option (B) is correct.** [1]

Explanation: As per Fleming's left hand rule, the force acting on the wire perpendicular to the current in the wire and magnetic field. Hence, there would be two possibilities for the direction of force i.e., upwards or downwards.

- 15. Option (B) is correct.** [1]

Explanation: The thinner or smaller the diameter (cross sectional area), the greater the resistance. This means that resistance is inversely proportional to the area of the wire.

- 16. Option (D) is correct.** [1]

Explanation: The magnetic field near a long straight wire is concentric circles. Their centres lie on the wire. The magnetic field lines of a long straight wire are comprised of concentric circles centred around the wire. The direction of magnetic field lines is given by the right-hand thumb rule.

- 17. Option (C) is correct.** [1]

Explanation: Decomposition reactions require a source of energy in the form of heat, light, or electricity to decompose the compound involved. Hence, it can be concluded that decomposition reactions are endothermic in nature.

- 18. Option (A) is correct.** [1]

Explanation: Height in pea plants is controlled by efficiency of enzymes and is thus genetically controlled as cellular DNA is the information source for making proteins in the cell.

- 19. Option (C) is correct.** [1]

Explanation : The heart of an amphibian, such as a frog, has three chambers, one ventricle and two atria.

- 20. Option (A) is correct.** [1]

Explanation: A current carrying freely suspended solenoid behaves just like a bar magnet. Hence, it rests in the North-South direction exactly in the same manner as a bar magnet does.

SECTION-B

- 21.** Calcium hydroxide reacts with carbon dioxide present in the atmosphere to form calcium carbonate which results in milkiness/white ppt. / Formation of calcium carbonate
 $\text{Ca}(\text{OH})_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$ (1mark)
OR
 $\text{Fe} + \text{HCl} \rightarrow \text{FeCl}_2/\text{FeCl}_3 + \text{H}_2$ (No deduction for balancing/ states)
 $\text{Zn} + \text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$ [2]

- 22.**

Beating of heart	Reflex actions
Involuntary actions are the actions which are not controlled by our will	Reflex actions are the sudden action in response to something.

They do not need any kind of stimulus to work.	They require stimulus for its action.
These actions are regulated by the brain.	These actions are regulated by the spinal cord.
They do not involve skeletal muscle.	They do involve skeletal muscle.
These actions are performed throughout one's life.	These actions are produced in response to an event of an emergency.
This action may be quick or slow.	Reflex actions are always quick.

Any four points [2]

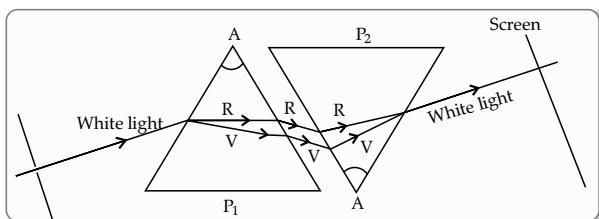
- 23.** Gallbladder stores bile which helps in emulsification of lipids. In the absence of stored bile, emulsification of fats will be negligible/ affected/ less and thus fat digestion will be slow. Hence there are such diet restrictions. [1 + 1]

- 24.** Glucose, amino acids, salts and a major amount of water are selectively re-absorbed as the urine flows along the tube. (Any two) 1/2 + 1/2
The amount of water reabsorbed depends on how much excess water there is in the body, and on how much of dissolved waste there is to be excreted
 $\frac{1}{2} + \frac{1}{2}$

- 25.** Dispersion- The splitting of white light into seven colours on passing through a prism. [1]
Velocity is directly proportional to wavelength given constant frequency. So yellow will have greater wavelength than blue as the velocity of yellow light is greater than blue.
 $\frac{1}{2} + \frac{1}{2}$

OR

Angle of deflections of the two prisms need to be equal and opposite. While the first prism splits the light in the seven colours due to different angles of deflection, the second prism combines the spectrum along a single ray and the colours again combine to give white light as the emergent light. [1]



[1]

- 26.** Excess generation of biodegradable wastes can be harmful as.

- (i) Its decomposition is a slow process leading to production of foul smell and gases. [1]

- (ii) It can be the breeding ground for germs that create unhygienic conditions. [1]

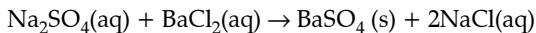
SECTION-C

27. (i) Displacement reaction $\frac{1}{2}$

- $\text{Fe(s)} + \text{CuSO}_4\text{(aq)} \rightarrow \text{FeSO}_4\text{(aq)} + \text{Cu(s)}$
- $\text{Zn(s)} + \text{CuSO}_4\text{(aq)} \rightarrow \text{ZnSO}_4\text{(aq)} + \text{Cu(s)}$
- $\text{Pb(s)} + \text{CuCl}_2\text{(aq)} \rightarrow \text{PbCl}_2\text{(aq)} + \text{Cu(s)}$

(Any one of the reaction or other displacement reaction.) [1]

- (ii) Double displacement reaction $\frac{1}{2}$

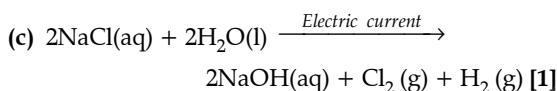


[1]

(Any one of the reaction or other double displacement reaction.)

28. (a) Anode: Chlorine; Cathode: Hydrogen [1]

- (b) Chlor alkali process as the products obtained are alkali, chlorine gas and hydrogen gas [1]



29. No photosynthesis will occur so no glucose will be made. Also no respiration will take place as no Oxygen will be taken in. [1]

No transpiration will occur so there would be no upward movement of water or minerals from the soil as there will be no transpirational pull. [1]

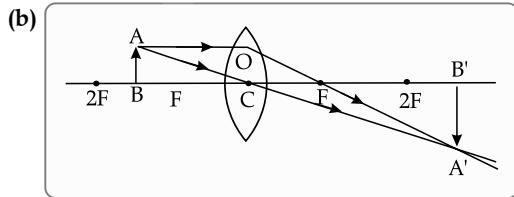
Temperature regulation of leaf surface will be affected. [1]

OR

Lymph carries digested and absorbed fat from the intestine and drains excess fluid from extracellular space back into the blood.

Blockage of lymphatic system will lead to water retention and poor fat absorption in the body [3]

30. (a) The object has to be placed at a distance between 0 - 40 cm. This is because image is virtual, erect and magnified when the object is placed between F and P. [1]



[1]

- (c) Used as shaving mirror or used by dentists to get enlarged image of teeth (any one use) [1]

31. (a) Given, image distance, $v = -25$ cm, focal length, $f = 5$ cm, magnification, $m = ?$

$$\text{From lens formula, } \frac{1}{f} = \frac{1}{v} - \frac{1}{u} \Rightarrow \frac{1}{u} = \frac{1}{f} - \frac{1}{v}$$

$$\frac{1}{u} = \frac{1}{-25} - \frac{1}{5} = \frac{-1-5}{25} = \frac{-6}{25}$$

$$\text{object distance, } u = \frac{-25}{6}$$

$$\text{we know that, } m = \frac{v}{u} = \frac{-25 \times 6}{-25} = 6 \quad [2]$$

- (b) This is because the least distance of distinct vision is 25 cm. [1]

32. (a) When iron filings are placed in a magnetic field around a bar magnet, they behave like tiny magnets. The magnetic force experienced by these tiny magnets make them rotate and align themselves along the direction of field lines. [1]

- (b) The physical property indicated by this arrangement is the magnetic field produced by the bar magnet. [1]

- (c) Magnetic field lines never intersect, magnetic field lines are closed curves. [1]

OR

- (a) The deflection in the compass needle increases as magnetic field of the current carrying conductor is directly proportional to current flowing through it.

- (b) The deflection in the needle decreases as the magnetic field is inversely proportional to the perpendicular distance from the wire. [3]

33. Damage to the ozone layer is a cause for concern because the ozone layer shields the surface of earth from harmful UV radiations from the sun which cause skin cancer in human beings. [1]

Synthetic chemicals like chlorofluorocarbons (CFCs) which are used as refrigerants and in the fire-extinguishers are the main reason for the depletion of the ozone layer. [1]

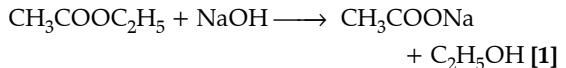
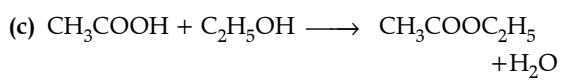
Steps taken to limit this damage - Many developing and developed countries have signed and are obeying the directions of UNEP (United Nations Environment Programme) to freeze or limit the production and usage of CFCs at 1986 levels. [1]

SECTION-D

34. (a) A – Ethanoic acid/ Or any other carboxylic acid, C- Sodium salt of ethanoic acid/ any other carboxylic acid/ sodium ethanoate. $\frac{1}{2} + \frac{1}{2}$

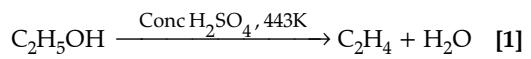
- (b) Use of A- dil. solution used as vinegar in cooking/ preservative in pickles [1]

Use of B – making perfumes, flavoring agent [1]

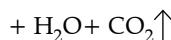
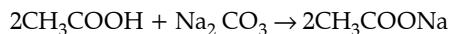


OR

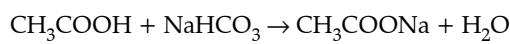
- (a) Sulphuric acid acts as dehydrating agent. [1]



- (b) By reaction with sodium carbonate/ bicarbonate with the samples, ethanol will not react whereas ethanoic acid gives brisk effervescence [1½]



OR



[1½]

35. (a) The reason is that many multi-cellular organisms are not simply a random collection of cells. Specialised cells are organised as tissues, and tissues are organised into organs, which then have to be placed at definite positions in the body. Therefore, cell-by-cell division would be impractical. [2]

- (b) Sexual maturation of reproductive tissues is a necessary link for reproduction because of the need for specialised cell called germ-cells to participate in sexual reproduction. The body of the individual organism has to grow to its adult size, the rate of general body growth begins to slow down, reproductive tissues begin to mature. [1½]

A whole new set of changes in the appearance of the body takes place like change in body proportions, new features appear. This period during adolescence is called puberty.

There are also changes taking place that are different between boys and girls. In girls, breast size begins to increase, with darkening of the skin of the nipples at the tips of the breasts. Also, girls begin to menstruate at around this time. Boys begin to have new thick hair growth on the face and their voices begin to crack. [1½]

OR

- (a) If the niche were drastically altered, the population could be wiped out.

However, if some variations were to be present in a few individuals in these populations, there would be some chance for them to survive. Variation is thus useful for the survival of species over time. [2]

- (b) • The lining of the uterus thickens and is richly supplied with blood to nourish the growing embryo. [½]
 • The embryo gets nutrition from the mother's blood with the help of placenta. It is embedded in the uterine wall. [½]
 • It contains villi on the embryo's side of the tissue. On the mother's side are blood spaces, which surround the villi. [½]
 • This provides a large surface area for glucose and oxygen to pass from the mother to the embryo. The developing embryo will also generate waste substances which can

be removed by transferring them into the mother's blood through the placenta. [1]

- The child is born as a result of rhythmic contractions of the muscles in the uterus. [½]

36. (a) All spaces are connected in parallel. [1]

- (b) Let Resistance of Space 5 and 4 be R ohms respectively

$$\text{Resistance of Space 1} = 2 \text{ R ohms}$$

$$\text{Resistance of Space 2} = 30 \text{ ohms}$$

$$\text{Resistance of Space 3} = 20 \text{ ohms}$$

$$\text{Current} = 22 \text{ A} \quad \text{V} = 220 \text{ V}$$

$$\text{Total Resistance} = V/I$$

$$\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \frac{1}{R_4} + \frac{1}{R_5} = \frac{1}{R_{eq}}$$

$$\frac{1}{2R} + \frac{1}{30} + \frac{1}{20} + \frac{1}{R} + \frac{1}{R} = \frac{1}{R_{eq}}$$

$$\frac{30 + 2R + 3R + 60 + 60}{60R} = \frac{1}{R_{eq}}$$

$$\frac{150 + 5R}{60R} = \frac{1}{R_{eq}}$$

$$R_{eq} = \frac{60R}{150 + 5R} = \frac{220}{22}$$

$$60R = 10(150 + 5R)$$

$$60R = 1500 + 50R$$

$$10R = 1500$$

$$R = 150 \Omega$$

[4]

SECTION-E

37. (a) Rusting occurs in both A and B so there is an increase in mass. [1]

As the surface area of B is more, extent of rusting is more [1]

- (b) Galvanisation [1]

Oiling/ greasing/ painting/ alloying/ chromium plating or any other (any two ½ mark each) [1]

OR

C - Iron hinges on a gate.

Iron is in contact with both atmospheric oxygen and moisture/ water vapour. [2]

38. (a) Yes, green eye colour is recessive (½) as it will express only in homozygous condition [½]

- (b) BB, Bb [1]

- (c) bb × Bb [1]

	B	b
b	Bb	bb
b	Bb	bb

Genetic cross - [1]

50% of the offsprings can have green eye colour (0.5)

OR

Brother is heterozygous (Bb) and wife is homozygous (bb) - [1]

Wife bb × Bb brother

	B	b
b	Bb	bb
b	Bb	bb

50% of the offsprings can have green eye colour as per the cross shown. [1]

39. (a) Convex Lens [1]

- (b) Negative as the image is real and inverted. [1]

$$(c) \frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

$$\frac{1}{20} = \frac{1}{v} - \frac{1}{-21}$$

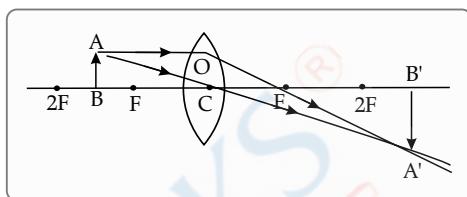
$$\frac{1}{v} = \frac{1}{20} - \frac{1}{-21}$$

$$\frac{1}{v} = \frac{1}{420}$$

$$v = 420 \text{ cm}$$

[2]

OR



[2]

□□□

Sample Question Paper-1

ENGLISH LANGUAGE & LITERATURE

Class-10th

(Issued by Board dated 16th Sep. 2022)

SOLVED

Time Allowed: 3 hours

Maximum Marks: 80

General Instructions:

1. 15-minute prior reading time allotted for Q-paper reading.
2. The Question Paper contains THREE sections-READING, GRAMMAR & WRITING and LITERATURE.
3. Attempt questions based on specific instructions for each part.

Section-A: Reading Skills

[20 marks]

I. Read the passage given below.

1. Mountains have always been held in great awe by mankind. They have been a challenge to humans. Those brave among us have always wanted to conquer them. You see, the more incredible the mountains, the greater the thrill – a challenge to the bravery of the human race. Climbing mountains is an experience that is hard to put into words. You are in a beautiful environment and, when you reach the top, you feel incredible. But you also have to climb down, which is when most accidents happen – people are tired, it gets dark, it's harder. So, mountain climbing is undoubtedly one of the most popular adventure sports along with being challenging and risky for the climber.
2. Without any perceived risk, there can't be a feeling that any significant challenge has been surmounted. Fair, but we have to bear in mind that mountaineering is not a sport that can be embraced without preparation. The enthusiasts must develop in themselves the spirit of adventure, willingness to undertake hardships and risks, extraordinary powers of perseverance, endurance, and keenness of purpose before climbing a mountain. They should also know how to handle the mountaineering equipment. Then comes the penance of the rigorous training. This could very well be the lifeline up there. It helps inculcate and hone survival instincts that allow the climber to negotiate perilous situations. There are numerous institutes in India and abroad that offer such training.
3. Mountain climbers are unanimous in agreeing that the unpredictable weather is what they fear the most. There may be sunshine one moment and a snowstorm the other. At higher altitudes, snow is a regular feature and being decisive about setting up camps or proceeding further is crucial. The icy sheets after ice storms make walking treacherous, while the powdery snow makes a mountaineer sink deep into the snow. Up there, where the intention is to embrace Nature's wonder, one realises that it cannot be done without facing its formidable glory. A true mountaineer may challenge the mountain, yet is always respectful to the powerful forces of nature.
4. Summing mountains carries its own health risks such as oxygen and altitude sickness problems, frost bites, swelling of hands and feet, fluid collection in brain or lungs and exhaustion. Yet, the gratification mountaineers feel from mastering something that is so frightening, urges them to undertake these endeavours. We may think that the mountaineers are fearless, experts say, "Not at all. It's fear that keeps them so intrigued with such arduous journeys." Impulse and brazenness can be deadly foes. In the words of the Indian mountaineer, Bachendri Pal, "The biggest risk ... is to not to take the risk at all. Remember that."

Based on your understanding of the passage, answer the questions given below.

- (i) Why does the writer say that mountains inspire 'awe' in humans? (Paragraph 1) [1]
- (A) They present us with opportunities for exciting sports.
(B) They evoke the wish in us, to master them.
(C) They inspire in us, deeds of valour.
(D) They represent peace and calm, to us.

- (ii) Select the option that corresponds to the following relation below:

The more incredible the mountains—the greater the thrill (Paragraph 1)

- (A) The higher the stamina—the lower the food intake
 - (B) The more you laugh—the lesser your illness
 - (C) The smaller the car—the bigger the advantage
 - (D) The heavier the luggage—the higher the penalty

[1]

- (iii) Select the option that displays what the writer projects, with reference to the following:

So, mountain climbing is undoubtedly one of the most popular adventure sports (Paragraph 1)

[1]

- (iv) Complete the following with a phrase from paragraph 1.

Opinion	Reason
	Best experienced rather than described

[1]

- (v) The writer compares training to penance in the line --*Then comes the penance of the rigorous training.*

State 1 point of similarity between training and penance.

[1]

- (vi) Based on your reading of the text, list 2 reasons why the writer says that "mountaineering is not a sport that can be embraced without preparation". (Paragraph 2)

- (1) _____
(2)

- (vii) What connect does the writer draw out between unpredictable weather and setting up of camps?

- (viii) The writer says, "A true mountaineer may challenge the mountain, yet is always respectful to the powerful forces of nature." (Paragraph 3)

Select the reason the mountaineer is respectful to the forces of nature, up in the mountains.

[1]

- (ix) Supply 1 point to justify the following:

While mountain climbing, an impulsive mountaineer is either disaster-prone or as good as dead. [1]

- (x) Evaluate the INAPPROPRIATE reason for the feeling of exhilaration on reaching a summit, that the mountain-climbers experience.

- (A) Achievement of a seemingly impossible feat
 - (B) Spectacular panoramic view
 - (C) Application of the inculcated survival instinct
 - (D) Opportunity to use sophisticated mountaineering equipment

[1]

II. Read the passage given below.

[10]

1. The North-East of India is a melting pot of variegated cultural mosaic of people and races, an ethnic tapestry of many hues and shades. Yet, these states are lesser explored as compared to the rest of the country. The new generations of travellers who are 'money rich and time poor' are increasingly looking for unique experiences --a phenomenon being called the emergence of the 'experience economy'. For this new and growing breed of tourists, the North-East with its variety and uniqueness holds immense attraction.

A study conducted in 2020 by Dr. Sherap Bhutia, revealed that the foreign tourist arrival in the North-East increased from 37,380 persons in 2005 to 118,552 in 2014. The overall growth rate of tourist (both domestic and foreign) in the North-East was as high as 26.44% during 2005-06.

2. A high and positive growth of 12.53% was registered in foreign tourist visits to North-East States of India during 2012 from 2011, which further rose to register a growth of 27.93% during 2013 from 2012. Foreign tourist arrivals in the North-East witnessed a growth of 39.77% during 2014 from 2013, according to data provided from the Ministry of Tourism, Government of India.
 3. The study recommendations for tourism planners included the need to concentrate on some key areas like enhancement of tourist facilities, tourism financing, focus on community involvement and others for the formulation of a sustainable tourism strategy in the North-East States of India. (234 words)

- (i) Infer one reason for the following, based on information in paragraph 1.

The rate of tourism in the North-East of India puzzles tourism officials.

[1]

- (ii) Select the appropriate option to fill in the blanks.

From paragraph 1, we can infer that the _____ and _____ of the North-Eastern states aid attracting the 'money rich and time poor' tourists.

- | | |
|--------------------|--------------------|
| 1. distinctiveness | 2. conventionality |
| 3. diversity | 4. uniformity |
| 5. modernity | |
| (A) 1 & 3 | (B) 2 & 4 |
| (C) 2 & 5 | (D) 1 & 4 |

[1]

- (iii) Complete the following analogy correctly with a word/ phrase from paragraph 1: aroma: cooking:: : painting (*Clue: Just like aroma is integral to cooking, similarly _____ is/ are integral to painting*)

[1]

- (iv) Select the correct option to complete the following sentence:

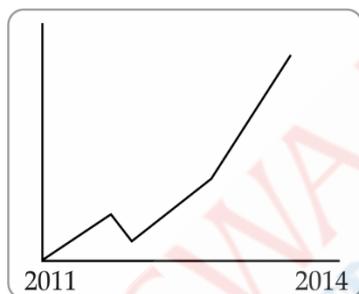
Travellers advocating the 'experience economy' seek a holiday package with _____ (Paragraph 1)

- (A) grand facilities, expensive hotels and excellent services to pamper them.
- (B) a wholesome experience within the budget they have planned for.
- (C) places and cities to buy things from and opportunities spend money.
- (D) cost-effective services, affordable accommodation and many days of touring.

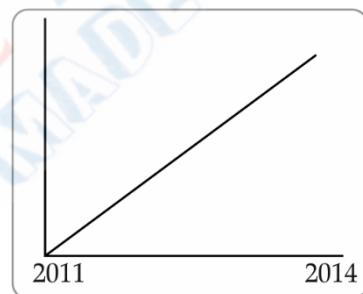
[1]

- (v) Select the chart that appropriately represents the trend of foreign tourist travels in the North-East, from 2011- 2014, as per paragraph 2.

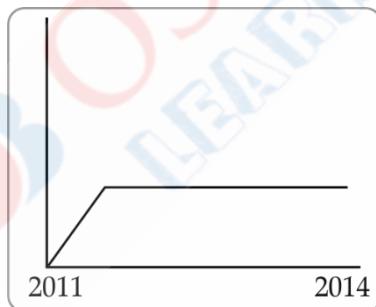
1.



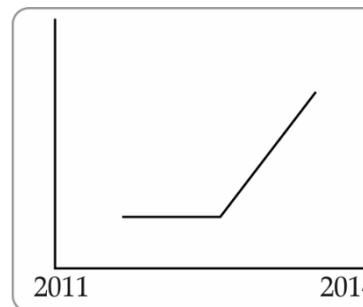
2.



3.



4.



(A) Option 1

(B) Option 2

(C) Option 3

(D) Option 4

For the Visually Impaired Candidates

Describe the trend of foreign tourist travels in the North-East, from 2011-2014 in ONE word, as per paragraph 2.

- (vi) Fill in the blank by selecting the correct option.

The study of tourist travel statistics in the North-East, from 2005 to 2014 showed _____ results.

- (A) expected
- (B) encouraging
- (C) inconsistent
- (D) questionable

[1]

- (vii) Substitute the word 'witnessed' with ONE WORD similar in meaning, in the following sentence from paragraph 2:
Foreign tourist arrivals in the North-East witnessed a growth of... [1]
- (viii) List any 2 examples of 'tourist facilities' as referred to, in Paragraph 3. [1]
- (ix) List one reason why the researchers recommend that the formulation of a tourism strategy in the North-Eastern States of India be sustainable. [1]
- (x) Select the option that titles paragraphs 1-3 appropriately, with reference to information in the text. [1]
- | | |
|---|--|
| (A) 1. Full speed Ahead
2. Ups and Downs
3. Cause for Concern | (B) 1. Winds of Change
2. Numbers Don't Lie
3. Time for Action |
| (C) 1. Inspecting Trends
2. Statistically Speaking
3. Let's Investigate | (D) 1. Cause & Effect
2. Dynamic Data
3. Dependable Facts |

III.**Section-B: Grammar**

[10 marks]

Attempt ANY TEN of the following questions.

- (i) Fill in the blank by choosing the correct option to complete an online update.
 The climate control comment by an activist on social media yesterday. [1]
- | | |
|-----------------------------|----------------------------------|
| (A) blow up
(C) is blown | (B) blew up
(D) will be blown |
|-----------------------------|----------------------------------|
- (ii) Read the conversation between a doctor and his patient. Complete the sentence by reporting the patient's reply correctly.
Doctor: Do you feel down from time-to-time Mr. Gopalan? Patient: Yes, I do not stay in a good mood.
 The doctor, while trying to figure out his patient's ailment, asked about his well-being, to which, the patient affirmed. [1]
- (iii) Select the correct option to fill in the blank for the given line, from a health magazine.
 The advertisement read, 'If you smoke, statistically your story _____ end 15% before it should'.

(A) must (C) will	(B) should (D) ought to
----------------------	----------------------------

 [1]
- (iv) Select the option that identifies the error and supplies the correction for the following line, from a news report:
 Last week a child was not allowed to board the plane at Ranchi airport. [1]

Option	error	correction
(A)	child	children
(B)	last	previous
(C)	the	a
(D)	at	in

- (v) Complete the given narrative, by filling in the blank with the correct option:
 As I was standing on the dock, looking out at the lake for the last time, a feeling of emptiness _____ over me like darkness. [1]
- | | |
|---------------------------------------|------------------------------|
| (A) will wash
(C) will have washed | (B) had washed
(D) washed |
|---------------------------------------|------------------------------|
- (vi) Fill in the blank by using the correct form of the word in the bracket, for the given portion of a letter:

Subject: Request for Approval

Dear Sir

This is to respectfully submit that I _____ (seek) approval for organising a tree plantation drive to be undertaken by the club. [1]

- (vii) Report the dialogue between a grandson and his grandfather, by completing the sentence:

Grandson: Grandpa, who are your superheroes?

Grandpa: Anyone who shows kindness and compassion to others.

In response to the question about his superheroes, grandfather says that _____.

[1]

- (viii) Identify the error in the given sentence, from a school magazine report and supply the correction.

In order to balancing the sentiments of the Eagles and the Hawks, the Student Council suggested a rematch between the teams.

Use the given format for your response.

[1]

error	correction

- (ix) Sunil shared some information, with Tariq, about a holiday at sea. Report Tariq's question.

Did you enjoy travelling by sea?

[1]

- (x) Fill in the blank by choosing the correct option, to complete the slogan by the Ministry for Child Welfare.

_____ WE AFFORD TO NEGLECT CHILDREN? THINK TWICE!!

- | | |
|----------|---------|
| (A) WILL | (B) MAY |
| (C) NEED | (D) CAN |

- (xi) Select the correct option to complete the narration of the dialogue between Latha and her father.

Father: Why ask so many questions, Latha?

Latha: I believe that if you don't know the answer, keep asking till you do!

Father asked Latha the reason for the many questions she was asking. Latha exclaimed good-humouredly that in event of not knowing the answer one should _____.

- | | |
|--------------------------------|---------------------------------|
| (A) keep asking till one does. | (B) kept asking till one does. |
| (C) keep asking till one do. | (D) kept on to ask till one do. |

[1]

- (xii) Identify the error on a shop's hoarding and supply the correction, for the following sales offer:

Gumnaam & Daughters Pvt. Ltd.

Bindapur, Jh

Massive discount for all senior citizen vaccinated with the precautionary dose.

Use the given format for your response.

[1]

error	correction

IV.

Section-C: Creative Writing Skills

[10 marks]

(All the names and addresses used in the questions are fictitious. Resemblance, if any, is purely coincidental.)

1. Attempt ANY ONE from A and B given below.

[5]

- A. You are Sunidhi Prakash, the Vice Captain of Brilliant Vidyalaya, Barra, Kanpur. You have recently noticed several posters around your school premises conveying a hazardous message:

Lose weight in just a month!

"A WONDER DIET comes to your rescue ...

A privilege available for only a few!"

Write a letter to the Editor of The DWA, in not more than 120 words, drawing attention towards harm caused by such advertising. Propose the implementation of "Wholesome Lunch Month" in schools as an idea to address such practices, mention the advantages and share suggestions to foster healthy eating routines and develop positive body image among youngsters.

OR

- B. You are Zac Skaria, a resident of # 412, Magna Greens Apartments, Gandhi Marg, Jonpara, Mumbai. Three students of grade 10 from your residential complex have rescued and rehabilitated a few old beggars from the neighbourhood. You think that their work deserves appreciation and recognition. Write a letter to the President of the RWA, seeking recommendation for these youth, to be nominated for 'Serving Citizens' Award'. Suggest other ways such acts of kindness could be recognised and awarded in the future.

2. Attempt ANY ONE from A and B given below.

[5]

- A. Gurmeet Kaur is an aspiring candidate for a public-funded engineering college in the suburbs. She belongs to a nearby village, has minimal technological skills and exposure, has the required cut-off percentage and is looking for a complete or partial scholarship.

Write a paragraph in about 100-120 words, analysing her SWOT notes to support your stand on whether she should join/not join the college.

STRENGTH	WEAKNESS
<ul style="list-style-type: none"> ● Strong Curriculum ● Quality faculty ● Vibrant Activity Clubs ● Green location ● Close proximity to residential areas 	<ul style="list-style-type: none"> ● Lack of diversity ● Students' behavioural problems ● No hostel facility ● Slow repair and maintenance work ● Underutilization of IT Services ● Lack of targeted advertisements to out-state students
OPPORTUNITIES	THREAT
<ul style="list-style-type: none"> ● Practice based research ● Partnership with professional organisations ● Strong alumni ● Acclaimed Student Exchange Programme with European countries 	<ul style="list-style-type: none"> ● Lack of publicity in areas of excellence ● Public perception towards funded colleges ● Declining students' interest towards technical subjects ● Low employee morale due to budget cuts

OR

B. Read the following excerpt from an online post of a website on educational practices.

Kids who appreciate how much effort, time and care goes into growing food will understand how important farmers are, and why it's important to take care of our Earth. In the world of today, gardening needs to be given more importance than sports, music and dance in all schools because it creates environmental stewards and outdoor learning laboratories that help the child and community for years to come.

Write a paragraph in 100-120 words to analyse the given argument.

You could think about what alternative explanations might weaken the given conclusion and include rationale / evidence that would strengthen / counter the given argument.

Section-D: Literature

[40 marks]

V. Reference to the Context

(10 marks)

1. Attempt ANY ONE of two extracts given.

[5]

- A. "Hey, a tea garden!" Rajvir cried excitedly.

Pranjol, who had been born and brought up on a plantation, didn't share Rajvir's excitement.

"Oh, this is tea country now," he said. "Assam has the largest concentration of plantations in the world. You will see enough gardens to last you a lifetime!"

"I have been reading as much as I could about tea," Rajvir said. "No one really knows who discovered tea but there are many legends." *(Glimpses of India)*

- (i) Why was Pranjol not as excited as Rajvir about the tea gardens?

- (A) He disliked looking at tea gardens.
- (B) He had worked in tea gardens himself.
- (C) He had grown up in and around tea gardens.
- (D) He was bored with tea gardens.

[1]

- (ii) What does Pranjol mean by saying that Assam has the largest concentration of plantations in the world?

[1]

- (iii) Fill in the blank with ONE WORD only.

Pranjol's _____ comes through clearly when he exclaims, "You will see enough gardens to last you a lifetime!"

[1]

OR

- B. OMEGA: It shall be done, Sir. Remove vitamins. (Crew takes vitamins from boxes on their belts.) Present vitamins.

(They hold vitamins out in front of them, stiffly.) Swallow vitamins. (They pop the vitamins into their mouths and gulp simultaneously. They open their eyes wide, their heads shake, and they put their hands to their foreheads.)

THINK-TANK: Excellent. Now, decipher that code.

ALL: It shall be done, Sir. (They frown over the book, turning pages.) OMEGA: (brightly) Aha!

IOTA: (brightly) Oho!

OOP: (bursting into laughter) Ha, ha, ha.

THINK-TANK: What does it say? Tell me this instant. Transcribe, Omega.

(The Book that Saved the Earth)

- (i) Select the option that correctly captures the usage of the word 'present' from line 1 of the extract.
(A) Oops received a nice present from Think Tank.
(B) Iota needs to present his opinion firmly.
(C) Omega must focus on the present and leave the past behind.
(D) Oops didn't know anyone even though a crowd was present. [1]

(ii) Complete the analogy by selecting the suitable word from the text frown: smile:: gloomily: _____ [1]

(iii) Select the option that displays the reason why all crew members were asked to have vitamins.
In order to -
(A) boost their physical energies. (B) adapt to their circumstances.
(C) quickly turn all the pages. (D) accomplish a specific task. [1]

(iv) According to the extract, what did THINK-TANK most likely want OMEGA to do when he said 'Transcribe...'?
1. read aloud 2. translate
3. make notes 4. interpret

Select the correct option

- (v) The playwright places certain words and sentences in brackets in the given extract.

List any ways these benefit both the director and actors.

- (i) _____
(ii)

2. Attempt ANY ONE of two extracts given.

- A. The trees inside are moving out into the forest, the forest that was empty all these days where no bird could sit no insect hide no sun bury its feet in shadow the forest that was empty all these nights will be full of trees by morning. (*The Trees*)

- (i) Complete the sentence appropriately.

It is clear that Personification is the poetic device used for 'No sun bury its feet....' because ... (Clue: explain how personification applies here) [1]

- (ii) The poet has used a poetic device in the given lines. What effect does she wish to create by its use?

...no bird could

sit no insect hide

no sun...

(A) emphasis

(B) comparison

(C) rhyme

(D) humour

[1]

- (iii) State whether the following statement is TRUE or FALSE: The extract uses trees as a symbol for conservative people. [1]

- (iv) Select the appropriate option to complete the sentence, according to the extract.

The idea of a forest that has been 'empty all these days' is _____.

(A) unnatural

(B) scary

(C) magical

(D) legendary

[1]

- (v) How does the use of enjambment impact this extract?

(A) It forces frequent pauses.

(B) It simplifies the meaning.

(C) It builds momentum.

(D) It makes the lines lyrical.

[1]

OR

- B. But I can get a hair-dye

And set such colour there,

Brown, or black, or carrot,

That young men in despair

May love me for myself alone

And not my yellow hair." (*For Anne Gregory*)

- (i) What is the poet's tone in the extract?

(1) thoughtful

(2) authoritative

(3) agitated

(4) insulting

(5) argumentative

Select the appropriate option.

(A) 1, 4

(B) 3, 5

(C) 2, 4

(D) 1, 5

[1]

- (ii) What causes the young men to 'despair', according to the extract? [1]

- (iii) Identify the reason for the speaker's need to colour her hair, as per the extract.

(A) Her control over what makes her look beautiful.

(B) Her desire to be loved for inner beauty

(C) Her need to change people's perception about beauty

(D) Her conviction that she is beautiful inside

[1]

- (iv) Complete the analogy about the speaker's hair.

yellow: blonde :: _____ : carrot

[1]

- (v) Select the sentence in which the word 'set' is used in the similar manner as line 2 of the extract.

(A) I want to set him up and get my work done this time.

(B) Do you have another set of the books that I can read?

(C) The dessert needs to set for two hours before being served.

(D) The set for the school play looked quite grand.

VI. Answer ANY FOUR of the following in about 40-50 words each.

[$4 \times 3 = 12$]

- (i) Validate the given statement with reference to baby seagull's fear.

'Fear doesn't exist anywhere else other than one's mind.' (*His First Flight- Two Stories about Flying*) [3]

- (ii) Explain why the poet personally holds the conviction that the world will primarily end in fire?

(*Fire and Ice*) [3]

- (iii) Valli's unique maiden bus ride experience could be possible because she belonged to a small village. Do you agree? Why? / Why not? (2 reasons) (*Madam Rides a Bus*) [3]
- (iv) Give one reason why '*The Tale of Custard the Dragon*' is more a fable than a ballad. [3]
- (v) How can we say that Natalya was continuously successful in maintaining an upper hand during her arguments with Lomov? (Any one example) (*The Proposal*) [3]

VII. Answer ANY TWO of the following in about 40-50 words each.[$2 \times 3 = 6$]

- (i) Dr. Herriot knew his patients as well as their owners really well. Discuss. (*The Triumph of Surgery*) [3]
- (ii) State one likely reason the writer of *The Midnight Visitor* chose to characterise Ausable as short and fat. [3]
- (iii) Validate the importance of small, fun learning tasks towards successful careers, in the context of Richard Ebright in *The Making of a Scientist*. [3]

VIII. Answer ANY ONE of the following in about 100-120 words.[$1 \times 6 = 6$]

- (i) Mijbil and the Tiger, both were looked after by humans. Assume they both meet each other in the zoo and have a conversation about their lifestyle and feelings.

Write this conversation as per your understanding of *Mijbil the Otter* and *A Tiger in the Zoo*.

You may begin like this

Tiger: Thanks for visiting me, though I don't usually like visitors.

Mijbil: Oh? I would love visitors, I think.

[6]

OR

- (ii) "Not from weeping nor from grieving will anyone obtain peace of mind".

If you had to use the message of the given quote from the Buddha's sermon (*The Sermon at Benares*) to help the boy cope with the loss of his ball and what it signifies (*The Ball Poem*), what would you include in your advice?

Also, evaluate why it might be difficult for him to understand the notion.

[6]

IX. Answer ANY ONE of the following in about 100-120 words.[$1 \times 6 = 6$]

- (i) Fiction writers prefer creating grey characters rather than black and white. Analyse this in detail, with reference to both the characters of *The Thief's Story*. [6]

OR

- (ii) 'Honour among thieves' is considered a popular code.

Examine *A Question of Trust* as a story woven around this code.

[6]

SOLUTIONS

Sample Question Paper-1

ENGLISH LANGUAGE & LITERATURE

(Answer with Marking Scheme)

Section-A: Reading Skills

- I. (i) Option (B) is correct.

Explanation: Mountains have always been held in great awe by mankind. They have been a challenge to humans. Those brave among us have always wanted to conquer them.

Value Points	Guidance
B. They evoke the wish in us, to master them.	<ul style="list-style-type: none">• Award 1 mark for the correct answer.• There is no partial credit

- (ii) Option (D) is correct.

Explanation: The given statement is comparing more with greater. Option D also caters to similar comparison. In other options, upper and lower limits are compared.

Value Points	Guidance
D. The heavier the luggage—the higher the penalty	<ul style="list-style-type: none">• Award 1 mark for the correct answer.• There is no partial credit

- (iii) Option (C) is correct.

Explanation: Undoubtedly shows conviction or firm belief.

Value Points	Guidance
C. conviction	<ul style="list-style-type: none">• Award 1 mark for the correct answer.• There is no partial credit

- (iv) hard to put in words

Explanation: Climbing mountains is an experience that is hard to put into words.

Value Points	Guidance
hard to put in words	<ul style="list-style-type: none">• Award 1 mark for the correct answer.• There is no partial credit

- (v) very difficult / requires perseverance (Any other relevant)

Value Points	Guidance
very difficult / requires perseverance	<ul style="list-style-type: none">• Award 1 mark for the correct answer• No partial credit

- (vi) • Because mountaineering includes difficulties like having to walk on icy sheets that cannot be accomplished without proper preparation of equipment
- Because mountaineering includes dealing with several Health hazards that cannot be managed without preparation.
- Because managing unpredictable weather is essential in mountaineering and cannot be accomplished without being prepared with specific training
- Because mountaineering presents the risk of fatality due to faulty decision-making and cannot be addressed without being prepared by accompanying/ engaging experienced climbers (Any other relevant/ correct from text) (Any 2)

Value Points	Guidance
<ul style="list-style-type: none"> Because mountaineering includes difficulties like having to walk on icy sheets that cannot be accomplished without proper preparation of equipment Because mountaineering includes dealing with several Health hazards that cannot be managed without preparation. Because managing unpredictable weather is essential in mountaineering and cannot be accomplished without being prepared with specific training Because mountaineering presents the risk of fatality due to faulty decision-making and cannot be addressed without being prepared by accompanying/ engaging experienced climbers <p>(Any other relevant/ correct from text)</p>	<ul style="list-style-type: none"> Award 1 mark for 2 correct/ relevant points Award $\frac{1}{2}$ mark for 1 correct/ relevant points

- (vii) If the weather is unpredictable, it makes it difficult to decide when to set up camp as mountaineers would prefer to climb when its sunny and camp when it's snowing.

Value Points	Guidance
If the weather is unpredictable, it makes it difficult to decide when to set up camp as mountaineers would prefer to climb when its sunny and camp when it's snowing.	<ul style="list-style-type: none"> Award 1 mark for the complete explanation Award $\frac{1}{2}$ mark for a partial but correct

- (viii) Option (A) is correct.

Explanation: A true mountaineer may challenge the mountain, yet is always respectful to the powerful forces of nature.

Value Points	Guidance
A. survival	<ul style="list-style-type: none"> Award 1 mark for the correct answer No partial credit

- (ix) Survival is key in mountain climbing and it can be done with meticulously planning / careful decision-making/ careful application of training (any one or more)

It has no room for rash or impulsive decisions/ actions— these would lead to accidents or fatalities.

Value Points	Guidance
Survival is key in mountain climbing and it can be done with meticulously planning / careful decision-making/ careful application of training (any one or more) It has no room for rash or impulsive decisions/ actions—these would lead to accidents or fatalities.	<ul style="list-style-type: none"> Award 1 mark for relevant justification No partial credit

- (x) Option (D) is correct.

Explanation: Option D is not related to exciting feeling.

Value Points	Guidance
D. Opportunity to use sophisticated mountaineering equipment	<ul style="list-style-type: none"> Award 1 mark for relevant justification No partial credit

- II.** (i) This is so because these states are lesser explored as compared to the rest of the country, in spite of having lots to offer.

Value Points	Guidance
This is so because these states are lesser explored as compared to the rest of the country, in spite of having lots to offer.	<ul style="list-style-type: none"> • Award 1 mark for the complete answer. • No partial credit

- (ii) Option (A) is correct.

Explanation: The North-East of India is a melting pot of variegated cultural mosaic of people and races, an ethnic tapestry of many hues and shades.

Value Points	Guidance
A. 1 & 3.	<ul style="list-style-type: none"> • Award 1 mark for correct response • No partial credit

- (iii) hues and shades

Explanation: Just like aroma is integral to cooking, similarly hues and shades are integral to painting.

Value Points	Guidance
hues and shades	<ul style="list-style-type: none"> • Award 1 mark for correct response • No partial credit

- (iv) Option (B) is correct.

Explanation: The 'money rich and time poor' tourists would surely require a budgeted planning.

Value Points	Guidance
B. a wholesome experience within the budget they have planned for.	<ul style="list-style-type: none"> • Award 1 mark for correct response • No partial credit

- (v) Option (B) is correct.

Explanation: There is a steep growth.

Value Points	Guidance
B. Option 2 For the visually impaired candidates rising/growing/increasing (any other relevant, correct)	<ul style="list-style-type: none"> • Award 1 mark for correct response • No partial credit

- (vi) Option (B) is correct.

Explanation: Because of the steep rise in tourists visiting the place, the people are encouraged to invest more in tourism prospects.

Value Points	Guidance
B. encouraging	<ul style="list-style-type: none"> • Award 1 mark for correct response • No partial credit

- (vii) observed/ recorded/ showed/ displayed (Any other similar relevant)

Value Points	Guidance
observed/ recorded/ showed/ displayed (Any other similar relevant)	<ul style="list-style-type: none"> • Award 1 mark for correct response • No partial credit

- (viii) (Any 2) Accommodation—hotels, hostels, camps

Recreation—Parks, Gardens, Museums, Shopping areas

Essential- eating outlets, toilets, water points, kiosks for maps / currency exchange (if needed), certified travel guide availability

Transport-dedicated shuttle service, sight-seeing buses, cards or passes, car hiring stations

Digital upgrades –WiFi availability, websites, ticketing, forums (Any other relevant)

Value Points	Guidance
(Any 2) Accommodation—hotels, hostels, camps Recreation—Parks, Gardens, Museums, Shopping areas Essential—eating outlets, toilets, water points, kiosks for maps/currency exchange (if needed), certified travel guide availability Transport—dedicated shuttle service, sight-seeing buses, cards or passes, car hiring stations Digital upgrades—WiFi availability, websites, ticketing, forums (Any other relevant)	<ul style="list-style-type: none"> • Award 1 mark for 2 relevant examples • Award ½ mark for 1 relevant example

(ix) (Any one)

- To create socio-economic benefits for the local community
- To reduce the negative impacts caused on the destination/s
- To ensure protection of culture and heritage/ To ensure minimal intervention in the cultural aspects
- To protect natural wildlife and resources

(Any other relevant)

Value Points	Guidance
(Any one) <ul style="list-style-type: none"> • To create socio-economic benefits for the local community • To reduce the negative impacts caused on the destination/s. • To ensure protection of culture and heritage/ To ensure minimal intervention in the cultural aspects • To protect natural wildlife and resources (Any other relevant)	<ul style="list-style-type: none"> • Award 1 mark for relevant and correct answer • No partial credits

(x) Correct option is B.

Explanation: Para 1- Changing scenario; Para 2- Statistics prove the growth of tourism; Para 3- Recommendations and think ahead strategy.

Value Points	Guidance
B. 1 Winds of Change 2 Numbers Don't Lie 3 Time for Action	<ul style="list-style-type: none"> • Award 1 mark for complete answer • No partial credit

Section-B: Grammar

III. (i) Option (B) is correct.

- (ii) that he does not stay in a good mood. (Addition of sometimes/time to time acceptable)
- (iii) Option C is correct.
- (iv) Option C is correct.
- (v) Option D is correct.
- (vi) seek
- (vii) it is anyone who shows kindness and compassion to others
- (viii) balancing – balance

error	correction
Balancing	Balance

- (ix) Tariq asked Sunil if/whether he had enjoyed travelling by sea.
- (x) Option D is correct.
- (xi) Option A is correct.
- (xii) all – each

error	correction
all	each

IV.**Section-C: Creative Writing Skills**

1. A. Brilliant Vidyalaya, Barra
Kanpur

29 August 2022

The Editor
The DWA
K-21, Anjana Pura
Kanpur

Subject: Need for Promoting Healthy Eating Routines

Dear Madam

This is with reference to posters bearing the message of 'crash diet' being posted around our school premises. Such posters impact the youngsters negatively and can be hazardous for their self-esteem.

I would like to propose the idea of implementing "Wholesome Lunch Month" for all school students to counter the implications of such misleading advertisements. This initiative is sure to encourage all students to bring nutritious and healthy lunch daily and develop healthy eating routines. To ensure that this project gains strength, schools may organize puppet shows, street plays, Ted Talks (by Nutritionist/ Psychologist), encompassing the theme, to foster healthy eating routines and a positive body image.

I hope that the publishing of my letter in the columns of your renowned daily, helps spread awareness and promotes a healthy lifestyle among students.

Yours truly

Sunidhi Prakash
Vice-Captain
(Content-132 words)

OR

B. # 421, Magna Greens Apartments
Gandhi Marg, Jonpara
Mumbai

19 July 2022

The President
RWA, Magna Greens Apartments
42, Gandhi Marg, Jonpara
Mumbai

Subject: Seeking Recommendation for 'Serving Citizens' Award' Nominations.

Dear Sir

This is with reference to the empathetic social service done by Miss Jiya, Mas Adwait and Master Pranit (residents of our complex), in rescuing and rehabilitating a few old beggars from our neighbourhood.

These students ensured that the beggars were rehabilitated at 'Seva Sadan'- an NGO which takes care of the needy of our city.

This selfless initiative carried out with dedication and responsibility, deserves due recognition. I, therefore, request you to issue a letter of recommendation for these students to be nominated for 'Serving Citizens' Award' organised by the local Municipal Corporation.

I would also like to submit that the RWA set up a special committee that looks into such acts in the future. This would aid dedicated attention and appropriate screening of nominations. Arrangement of academic sponsorships for such children would also be an encouraging gesture.

I entreat you address this at your earliest convenience and issue the recommendation letters.

Yours sincerely

Zac Skaria

(Content-152 words)

2. A. **In support of the decision:** The given information illustrates the options Gurmeet would weigh in order to take the right decision about her admission in a public-funded engineering college. With availability of strong curriculum, quality faculty and vibrant Activity Clubs, she will be assured of an enriching educational journey. Though hostel facility is unavailable, she may take up accommodation in the suburbs or choose to travel daily from her village. Good opportunities of practice-based research, partnership with professional companies and international students exchange program will enhance her professional and interpersonal skills. Hard work, responsible behaviour and prudent decision-making could help Gurmeet thrive in the college even though it has a rigid and conventional culture. The strengths and opportunities work in favour of Gurmeet. Taking this opportunity will allow her to mend the incorrect public perception towards public-funded colleges and students' outlook towards technical subjects. (129 words)

Against the decision: The given information indicates Gurmeet's dilemma about seeking admission in a public- funded college. Though equipped with a strong curriculum, engaging activity clubs and an able faculty, the college lacks diversity and good conduct among the students, giving rise to concerns of safe environment for a novice like Gurmeet. Underutilization of IT services will be further detrimental to the progress of Gurmeet's educational journey and add to extra costs related to research work. If she does not qualify for a complete or partial scholarship, arrangement of own accommodation and additional expense of students exchange programme will increase her expenditure, too. Such a college environment may dampen her endeavouring spirit. The weakness and threats outweigh the strengths, in case of Gurmeet. So, it is recommended that Gurmeet does not apply for admission to the said college. (139 words)

OR

- B. **Argument FOR the subject of the statement:** In the world of today, gardening needs to be given more importance than sports, music and dance in all schools. While sports, music and dance contribute towards personal growth, the current times mandate attention towards an issue that is global ---nature and natural processes. With growing food wastage in many homes today and the urban young believing that vegetables are grown, harvested at the super markets, the efforts of the farmers are discredited. Gardening at school will open a world of first-hand learning experiences of sowing, watering and harvesting processes. Waiting for the saplings to grow will inculcate sensitivity, patience, empathy, gratitude and value for one's hard work. They will feel accountable for their piece of Mother Earth, resulting in making them efficient and enterprising environmental stewards. Unlike sports, music or dance, gardening goes beyond just enjoyment to create aware and responsible citizens of the future. (148 words)

Argument AGAINST the subject of the statement: Gardening, certainly, should not be given precedence over sports, music and dance in all schools. Gardening at school requires good planning with hands-on guidance and continued supervision by the teachers. Students tend to lose interest due to the slow and natural growth progress of plants as well as the investment of continuous hard work. Small targets or goals would be missing whereas the danger of destruction of their work due to rains, intrusion of grazing animals or a pest attack is like to set in a feeling of defeat. It may be noted that sports, music and dance are uplifting activities which display faster results, are enjoyable and inculcate team spirit, collaboration and confidence. Unlike gardening, setbacks in these activities can be addressed with some sense of personal control. These activities help students express and de-stress successfully. So, maintaining their due importance in the school's co-curriculum is imperative. (148 words)

Section-D: Literature

V.

1. A. (i) Option (C) is correct.

Explanation: Prajol was the native of Assam. His father worked in Dhekiabari Tea Estate.

- (ii) that the cultivation/harvesting (or any similar suitable word) (of tea) is the highest at one place namely Assam.

- (iii) frustration / irritation/ exasperation (or any suitable word) compatible with the exclamation mark in the sentence.

- (iv) Option (B) is correct.

Explanation: There are prevalent Buddhist and Chinese legends about the origin of tea.

- (v) Option (B) is correct.

Explanation: 'cried' means blurted out.

- B. (i) Option (B) is correct.

Explanation: 'present' means to give out/ display.

- (ii) frown: smile: gloomily: brightly

Explanation: Frown and smile are opposite and the opposite of gloomily is brightly.

- (iii) Option (D) is correct.

Explanation: They had to decipher the code in the Earth library.

- (iv) Option (B) is correct.

Explanation: Transcribe means translate in understandable language after interpreting the code.

- (v) • Help actors and director gain clarity about the emotions and gestures required while performing / directing

• Helps with understanding stage setting and movements

(Or any other suitable explanation) (accept any two)

2. A. (i)the sun, which is non-human, is attributed the human feature of having feet.

(Accept any synonyms giving the similar/ correct meaning)

- (ii) Option (A) is correct.

Explanation: Repetition of 'no' is done to emphasise the result of absence of trees.

- (iii) False.

Explanation: Trees are symbolic of woman. Adrienne Rich is a feminist poet.

- (iv) Option (A) is correct.

Explanation: Trees are an integral part of nature/ forest. So it is unnatural to depict treeless forest.

- (v) Option (C) is correct.

Explanation: It results in smooth movement of ideas.

- B. (i) Option (B) is correct.

Explanation: The poet is disturbed as men get attracted to her yellow hair and so fail to notice her innate qualities that actually make her beautiful.

- (ii) Being hopelessly in love / the uncertainty in love/ unsurity of the return of their affections.

- (iii) Option (D) is correct.

Explanation: Her outward beauty overpower her inner beauty.

- (iv) yellow : blonde :: orange /red : carrot (either one can be accepted) Expl- yellow hair are similar to blonde hair and so is orange or red, the colour of a carrot.

- (v) Option (C) is correct.

Explanation: set means to be stable.

VI. (i) Detailed answer: 'Fear doesn't exist anywhere else other than one's mind. 'The baby seagull could not take his first flight as he was scared that his wings will not support his body weight. He saw his family fly.'

Even his younger brother and sister had flown yet the fear of falling down gripped his mind. It overpowered any sense of assurance or example. The result was that he was too scared to even try.

Value Points	Guidance
<ul style="list-style-type: none"> The baby seagull could not take his first flight as he was scared that his wings will not support his body weight Saw his family fly –Yet, the fear of falling down gripped his mind—it overpowered any sense of assurance or example <p>Result—was too scared to even try</p>	<p>Content - Award 2 marks for inclusion of any one impact with explanation. Award 1 mark if the impact is listed without explanation. No credit of $\frac{1}{2}$ mark</p> <p>Expression – 1 mark when both given aspects are included. <input checked="" type="checkbox"/> Answer organised effectively <input checked="" type="checkbox"/> usage of words for effect-cause (due to, as a result, owing to, therefore etc.) $\frac{1}{2}$ mark when either aspect is missing Deduct $\frac{1}{2}$ mark from the overall score if the error density is high (more than a total of 2 spellings and/or grammatical errors).</p>

(ii) **Detailed answer:** The poet personally holds the conviction that the world will primarily end in fire because he was a victim of the fiery aspect of desire. He has mentioned the same in the poem also.

“From what I've tasted desire

I hold with those who favour fire.”

Thus we can say that the poet, Robert Frost had experienced the destructive effects of ‘fire’ in his life.

Value Points	Guidance
<ul style="list-style-type: none"> He was a victim of the fiery aspect of desire. By his own admission, (From what I've tasted) he had experienced its destructive effects in his life. 	<p>Award 2 marks for the valid reference with analysis 1 mark if only reference is stated No credit of $\frac{1}{2}$ mark</p> <p>Expression – 1 mark when both given aspects are included <input checked="" type="checkbox"/> Answer organised effectively <input checked="" type="checkbox"/> The language usage needs to display a rationale and presentation of textual evidence $\frac{1}{2}$ mark when either aspect is missing Deduct $\frac{1}{2}$ mark from the overall score if the error density is high (more than a total of 2 spellings and/or grammatical errors).</p>

(iii) **Detailed answer:**

Agree: Valli's unique maiden bus ride experience could be possible because she belonged to a small village. I agree with this statement because a bus ride seemed to a small village girl to be like a fascinating means of recreation and adventure. Unlike cities and bigger towns' children she was fascinated with the prospect of travelling by bus. Moreover, she could travel alone safely which is unfortunately, not recommended in larger townships or cities. However, there was only one bus that Valli observed several times. The cities have varied means of transport that might seem more adventurous.

Disagree: Valli's unique maiden bus ride experience could be possible because she belonged to a small village. I completely disagree with this statement because fascination for riding a bus or an automobile can exist in children of Valli's age even in big cities. Moreover, travelling unnoticed is easier in large cities than in small towns or villages due to familiarity. Also the cities would offer more opportunities for a bus ride due to availability and frequency of several buses on the same route.

Value Points	Guidance
<p>Agree:</p> <ul style="list-style-type: none"> • A bus ride seemed like a fascinating means of recreation and adventure ---unlike cities and bigger towns • She could travel alone safely –unfortunately, not recommended in larger townships or cities • There was only one bus that Valli observed several times – cities have varied means of transport that might seem more adventurous <p>Disagree:</p> <ul style="list-style-type: none"> • Fascination for riding a bus or an automobile can exist in children of Valli's age even in big cities. • Travelling unnoticed is easier in large cities than in small towns or villages due to familiarity • Cities would offer more opportunities for a bus ride due to availability and frequency of several buses on the same route. 	<p>Content -</p> <p>Award 2 marks for 2 valid points and explanation</p> <p>Award 1 mark for 1 valid point and explanation</p> <p>No credit of $\frac{1}{2}$ mark</p> <p>Expression –</p> <p>1 mark when</p> <ul style="list-style-type: none"> ✓ Answer organised effectively ✓ The language usage needs to display reasons. <p>$\frac{1}{2}$ mark when either is missing</p> <p>Deduct $\frac{1}{2}$ mark from the overall score if the error density is high (more than a total of 2 spellings and/or grammatical errors).</p>

(iv) **Detailed answer:** 'The Tale of Custard the Dragon' is more a fable than a ballad because a fable is fictitious narrative usually with animals, birds etc. as characters and shares a strong message whereas a ballad is narrative verse that can be silly or heroic. The Tale of Custard the Dragon includes animals, is surely fictitious and shares a meaningful message. Hence, it better qualifies as a fable.

Value Points	Guidance
<ul style="list-style-type: none"> • Fable is fictitious narrative usually with animals, birds etc as characters and shares a strong message whereas a ballad is narrative verse that can be silly or heroic. • The Tale of Custard the Dragon includes animals, is surely fictitious and shares a meaningful message. <p>Hence, better qualifies as a fable.</p>	<p>Content -</p> <p>Award 2 marks for stating the reason with valid textual evidence.</p> <p>Award 1 mark for either</p> <p>No credit of $\frac{1}{2}$ mark</p> <p>Expression –</p> <p>1 mark when both given aspects are included</p> <ul style="list-style-type: none"> ✓ Answer organised effectively ✓ The language usage needs to display rationalisation (since... therefore...) <p>$\frac{1}{2}$ mark when either aspect is missing</p> <p>Deduct $\frac{1}{2}$ mark from the overall score if the error density is high (more than a total of 2 spellings and/or grammatical errors).</p>

(v) **Detailed answer:** Natalya was continuously successful in maintaining an upper hand during her arguments with Lomov because she was able to answer every query and present an argument defeating the one presented by Lomov. She argued about ownership of Oxen meadows and claimed that it is a matter of principle and not greed. She showed conviction and belief while arguing. When she argued about dogs, Natalya claimed that her dog was cheaper, was of better breed and could run faster. She never lost cool while presenting her arguments although Lomov started palpitating.

Value Points	Guidance
<p>Upper hand—</p> <ul style="list-style-type: none"> • She was able to answer every query and present an argument defeating the one presented by Lomov. 	<p>Content -</p> <p>Award 2 mark for 2 valid points.</p> <p>Award 1mark for 1 valid point.</p>

<p>Arguments—</p> <ul style="list-style-type: none"> • Argument about ownership of Oxen meadows – Natalya argued that it is a matter of principle and not greed. • She showed conviction and belief while arguing. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Argument about dogs – Natalya argued that her dog was cheaper, was of better breed and could run faster. • Never lost cool while presenting her arguments. 	<p>No credit of $\frac{1}{2}$ mark</p> <p>Expression –</p> <p>1 mark when both given aspects are included</p> <ul style="list-style-type: none"> ✓ Answer organised effectively ✓ The language usage needs to display justification (therefore...evidence shows that... etc.) <p>$\frac{1}{2}$ mark when either aspect is missing</p> <p>Deduct $\frac{1}{2}$ mark from the overall score if the error density is high (more than a total of 2 spellings and grammatical errors).</p>
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VII. (i) Detailed answer: Dr. Herriot knew his patients as well as their owners really well. Dr. Herriot could understand the problems of his patients (dogs) just by observing them. When he saw Tricki in the market, he understood that the dog required help.

He understood the owner (Mrs.Pumphrey) also very well. Even though he knew fully well that she was responsible for Tricki's pathetic condition yet he never spoke any harsh and advising words on the seriously obese dog. He truly understood her love for her loving dog.

Value Points	Guidance
<ul style="list-style-type: none"> • Patients—Dr. Herriot could understand the problems of his patients (dogs) just by observing—saw Tricki in the market and understood that the dog requires help. • Owners—He understood the owner (Mrs. Pumphrey) well and never spoke any harsh and advising words on the seriously obese dog- knowing fully well that she was responsible for this condition 	<p>Content-</p> <p>Award 2 mark for a point each for patients and owners</p> <p>Award 1mark for extension of either</p> <p>No credit of $\frac{1}{2}$ mark</p> <p>Expression:</p> <p>1 mark when both given aspects are included</p> <ul style="list-style-type: none"> ✓ Answer organised effectively ✓ The language usage needs to display stating of inference (based on...I believe that/.... reveals that.... etc.) <p>$\frac{1}{2}$ mark when either aspect is missing</p> <p>Deduct $\frac{1}{2}$ mark from the overall score if the error density is high (more than a total of 2 spellings and grammatical errors).</p>

(ii) Detailed answer: Ausable was characterised as short and fat as the writer wants to draw attention to and emphasise his wits and mental ability to handle any grave situation. Ausable was able to successfully plant a story of a non-existent balcony and also made the agile and smart Max believe that it didn't require an attractive physique to do this.

The writer, perhaps, wanted to give a strong message that the brain is what counts more than muscle power or the brain power is far more potent and effective than any other type of power-muscle or arms etc.

Value Points	Guidance
<ul style="list-style-type: none"> • Ausable — characterised as short and fat as the writer wants to draw attention to and emphasise his wits and mental ability to handle any grave situation <p>[Ausable was able to successfully plant a story of a non-existent balcony and also made the agile and smart Max believe it ---didn't require an attractive physique to do this.]</p>	<p>Content-</p> <p>Award 2 mark for a point supported with textual evidence</p> <p>Award 1mark for just textual evidence</p> <p>No credit of $\frac{1}{2}$ mark</p> <p>Expression:</p> <p>1mark when complete explanation is given</p>

- | | |
|---|--|
| <ul style="list-style-type: none"> The writer, perhaps, wanted to give a strong message that the brain is what counts more than brawn/ muscle power OR brain power is far more potent/effective than any other type of power- muscle/arms etc. | <ul style="list-style-type: none"> ✓ Answer organised effectively ✓ The language usage needs to display stating of inference (based on...I believe that/.... reveals that.... etc.) <p>½ mark when explanation has missing aspects.
Deduct ½ mark from the overall score if the error density is high (more than a total of 2 spellings and grammatical errors).</p> |
|---|--|

- (iii) Detailed answer:** Richard Ebright started the collection and breeding of butterflies as a fun activity. He got curious about the gold spots and the secretion from them. He was able to develop a theory of cell structure and later DNA because of it. Thus fun learning resulted in his career as a renowned successful scientist.

Value Points	Guidance
<ul style="list-style-type: none"> Started the collection and breeding of butterflies as a fun activity. Got curious about the gold spots and the secretion from them. Was able to develop a theory of cell structure and later DNA because of it. Fun learning resulted in a career as a renowned successful scientist. 	<p>Content— Award 2 marks for explanation with clear textual evidence Award 1 mark for just textual evidence No credit of ½ mark</p> <p>Expression: 1mark when complete explanation is given</p> <ul style="list-style-type: none"> ✓ Answer organised effectively ✓ The language usage needs to display action and impact (therefore... hence... this caused etc.) <p>½ mark when explanation has missing aspects. Deduct ½ mark from the overall score if the error density is high (more than a total of 2 spellings and grammatical errors).</p>

VIII. (i) Detailed answer:

- Tiger:* Thanks for visiting me, though I don't usually like visitors.
- Mijbil:* Oh? I would love visitors, I think.
- Tiger:* I'm unhappy in captivity and I truly cannot forgive human beings for my captivated state.
- Mijbil:* But I'm happy about my life with my owner as his pet. I get to play and go for walks with my loving owner.
- Tiger:* I have known through my experience that humans are selfish beings. They put us under their custody for their entertainment. I wish they'd know the value of peaceful co-existence.
- Mijbil:* But I enjoy meals and company of my owner. I feel that my existence is peaceful and secured in the company of my owner. Perhaps I would be scared to be out in the wild and wouldn't know how to survive.
- Tiger:* Our likings are different. I only long to be free in my natural habitat. Perhaps I wouldn't wish to be tamed as a pet as I get disturbed by the human activity.

Value Points
<p>Mijbil—</p> <ul style="list-style-type: none"> Happy about his life with his owner as a pet—perhaps would be scared to be out in the wild – wouldn't know how to survive Gets to play/go for walks Enjoys meals and company of the owner – exists peacefully in the company of his owner <p>Tiger</p> <ul style="list-style-type: none"> Unhappy in captivity-- blames humans for caging him—wished they'd know the value of peaceful co-existence

- Longing to be free and in natural habitat – perhaps wouldn't wish to be tamed as a pet
- Gets disturbed by the human activity

(Accept any other relevant point stemming from textual inference/s)

OR

- (ii) Detailed answer:** The learning from the referenced quote of Buddha—The loss of irreplaceable things brings grief and sorrows. Learning to stay calm and understanding the perishable/mortal nature of things helps in living life normally and forgetting loss.

To help the boy cope with the loss—The boy should be advised that loss is an important part of life. We lose things every day and every moment. Even a second not used constructively is a loss of time. It is important to learn from experience. We have to adapt and move on.

Difficult for the boy to understand the notion— But the boy is too young to understand the depth of these words. He is alone in his loss. He has no one to explain and must learn from his experience painstakingly. He requires time to cope as it is easy to feel disheartened at his age. One becomes matured with each passing day.

Value Points

The learning from the referenced quote of Buddha--

- the loss of irreplaceable things brings grief and sorrows.
- learning to stay calm and understanding the perishable/mortal nature of things helps in living life normally and forgetting loss

To help the boy cope with the loss—that loss is an important part of life –important to learn from experience—adapt and move on.

Difficult for the boy to understand the notion---

The boy is too young to understand the depth of these words-- is alone in his loss ---has no one to explain and must learn from his experience painstakingly--requires time to cope ---easy to feel disheartened at that age

- IX. (i) Detailed answer:** In 'The Thief's Story', both the characters in the story are neither completely black (negative) nor white (ideal). They have redeeming qualities as well as those that need improvement. Thus the story reveals both the characters as grey.

Hari Singh, the thief, is artful and too smart for his age. He fooled his victims and even the police. He wasn't ashamed of lying or stealing. He made no efforts to confess that he had given in to the temptation of stealing the currency notes. However, he changed due to love, affection and Anil's trust. The character of Hari Singh is not a flat character who is either black or white.

We always admire Anil for his qualities. He is helpful and simple and easily trusting. He forgave the thief and never uttered a word despite knowledge of the theft. However, he was not perfect. He was casual about money and ignored Hari Singh's pilfering. Thus the character of Anil is also not a flat character who is either black or white.

Grey characters present a challenge to the readers, allow a sense of unpredictability and present a moral challenge. Thus, Hari Singh and Anil are created as grey characters.

Value Points

Introductory—

Both characters in the story—neither completely black (negative) or white (ideal)— have redeeming qualities as well as those that need improvement—story reveals both their personas as grey.

Hari Singh

- Thief—artful - too smart for his age - fooled his victims and police --Wasn't ashamed in lying and stealing –made no efforts to confess that he had given in to the temptation of stealing the notes

However,

- Changed due to love, affection and Anil's trust

The character of Hari Singh—not a flat character who is either black or white.

Anil

- While we can admire Anil for his qualities—helpful and simple—easily trusting—forgave the thief—never uttered a word despite knowledge of the theft

However,

- Not perfect--casual about money—ignored Hari Singh's pilfering
The character of Hari Singh—not a flat character who is either black or white.

Conclusion—Grey characters present a challenge to the readers, allow a sense of unpredictability and present a moral challenge. Hari Singh and Anil are created as grey characters.

OR

- (ii) **Detailed answer:** 'Honour among thieves' states that it is believed that thieves never double cross each other. They never commit crimes against each other. They would be inclined to help rather than betray each other.

The protagonist, Horace Danby was careful and meticulous in his theft which he conducted once a year. He took utmost care in attempting the theft as a clean game. But he didn't anticipate the role of the lady in red.

As Horace never expected her, the lady in red made a fool of him. In spite of being a thief herself, she did not follow the code of honour normally existing between two thieves. This resulted in Horace Danby going to prison for the first time in his life and he felt betrayed.

Value Points

Honour among thieves---It is believed that thieves never double cross each other/ commit crimes against each other—would be inclined to help rather than betray each other

The protagonist, Horace Danby

- was careful and meticulous in his theft which he conducted once a year
- didn't anticipate the role of the lady in red

The Lady in red

- made a fool of him -- in spite of being a thief herself, she did not follow the code of honour normally existing between two thieves

This resulted in Horace Danby going to prison for the first time in his life---he felt betrayed



प्रतिदर्श प्रश्न-पत्र-1

(दिनांक 16 सितम्बर 2022 को बोर्ड द्वारा प्रेषित)

हिन्दी 'ब' (085)

कक्षा-X, सत्र 2022-23

समय : 3 घण्टे

पृष्ठांक : 80

सामान्य निर्देश :

- इस प्रश्न-पत्र में दो खण्ड हैं— खंड 'अ' और 'ब'
- खंड 'अ' में उपप्रश्नों सहित 45 वस्तुपरक प्रश्न पूछे गए हैं, दिए गए निर्देशों का पालन करते हुए कुल 40 प्रश्नों के उत्तर दीजिए।
- खंड 'ब' में वर्णनात्मक प्रश्न पूछे गए हैं, आंतरिक विकल्प भी दिए गए हैं।
- निर्देशों को बहुत सावधानी से पढ़िए और उनका पालन कीजिए।
- दोनों खंडों के कुल 18 प्रश्न हैं। दोनों खंडों के प्रश्नों के उत्तर देना अनिवार्य है।
- यभासंभव दोनों खंडों के प्रश्नों के उत्तर क्रमशः लिखिए।

खण्ड 'अ' वस्तुपरक-प्रश्न

1. निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़कर इसके आधार पर सर्वाधिक उपयुक्त उत्तर वाले विकल्प चुनकर लिखिए—

(1 × 5 = 5)

'एक भारत श्रेष्ठ भारत' अभियान देश के विभिन्न राज्यों में सांस्कृतिक एकता को बढ़ावा देता है। भारत एक अनोखा राष्ट्र है, जिसका निर्माण विविध भाषा, संस्कृति, धर्म के तानों-बानों, अहिंसा और न्याय के सिद्धान्तों पर आधारित स्वाधीनता संग्राम तथा सांस्कृतिक विकास के समृद्ध इतिहास द्वारा एकता के सूत्र में बाँधकर हुआ है। हम इतिहास की बात करें या वर्तमान की भारतवर्ष में कला एवं संस्कृति का अनूठा प्रदर्शन हर समय एवं हर स्थान पर हुआ है। नृत्य, संगीत, चित्रकला, मूर्तिकला, वास्तुकला इत्यादि से समृद्ध भारत की पहचान पूरे विश्व में है। भारतीय वास्तुकला एवं मूर्तिकला की परंपरा अत्यंत प्राचीन है। इस कला की कहानी लगभग पाँच हजार वर्ष पूर्व सिंधु घाटी की सभ्यता से आरंभ होती है। इसके दो प्रमुख नगरों; मोहनजोदहो और हड्डप्पा में अच्छी सड़कें, दो मंज़िले मकान, स्नान-घर, पक्की ईंटों के प्रयोग के सबूत मिले हैं। गुजरात के लोथल नामक स्थान की खुदाई से पता चलता है कि वहाँ नावों से सामान उतारने के लिए 216×37 मीटर लम्बी-चौड़ी तथा 15 फीट गहरी गोदी बनी हुई थी। ये लोग मिट्टी, पत्थर, धातु, हड्डी, काँच आदि की मूर्तियाँ एवं खिलौने बनाने में कुशल थे। धातु से बनी एक मूर्ति में एक नारी को कमर पर हाथ रखे नृत्य मुद्रा में दर्शाया गया है। दूसरी मूर्ति पशुपतिनाथ शिव की तथा तीसरी मूर्ति दाढ़ी वाले व्यक्ति की है। ये तीनों मूर्तियाँ कला के सर्वश्रेष्ठ नमूने हैं। मूर्ति का श्रेष्ठ होना मूर्तिकार के कौशल पर निर्भर करता है। मूर्ति की प्रत्येक भावभंगिमा को दर्शाने में मूर्तिकार जी-जान लगा देता है। भारत के प्रत्येक कोने में इस प्रकार की विभिन्न कलाएँ हमारी संस्कृति में प्रतिबिंबित होती हैं। इस अतुलनीय निधि का बचाव और प्रचार-प्रसार ही एक भारत श्रेष्ठ भारत की परिकल्पना है।

- (1) भारत को 'अनोखा राष्ट्र' कहने से लेखक का तात्पर्य है—

- | | |
|--|---|
| (क) बहुमुखी प्रतिभा का प्रदर्शन | (ख) मूर्तिकला के सर्वश्रेष्ठ नमूने |
| (ग) संवेदनशील भारतीय नागरिक | (घ) विभिन्नता में एकता का प्रतीक |
| (2) सिंधु घाटी की सभ्यता प्रतीक है— | |
| (क) मूर्तिकार के कौशल का | (ख) एक भारत श्रेष्ठ भारत का |
| (ग) प्राचीन सुव्यवस्थित सभ्यता का | (घ) स्वाधीनता संग्राम के नायकों का |
| (3) गद्यांश हमें संदेश देता है— | |
| (क) कलाकार अपनी कला का श्रेष्ठ प्रदर्शन करता है। | (ख) भारतीय नृत्य और संगीत की कला विश्व प्रसिद्ध है। |

- (ग) भारतीय सभ्यता व संस्कृति का संरक्षण आवश्यक है। (घ) स्वाधीनता संग्राम में क्रांतिकारियों का विशेष योगदान है।

(4) गद्यांश में मूर्तियों का सविस्तार वर्णन दर्शाता है—
 (क) सूक्ष्म अवलोकन एवं कला-प्रेम (ख) प्राचीन मूर्तियों की भावभंगिमा
 (ग) स्थूल अवलोकन एवं कला-प्रेम (घ) सांस्कृतिक एकता एवं सौहार्द

(5) निम्नलिखित कथन (A) तथा कारण (R) को ध्यानपूर्वक पढ़िए। उसके बाद दिए गए विकल्पों में से कोई एक सही विकल्प चुनकर लिखिए।

कथन (A) : भारतवर्ष में कला एवं संस्कृति का अनूठा प्रदर्शन हर समय हुआ है।
 कारण (R) : भारतीय वास्तुकला एवं मूर्तिकला की परंपरा अत्यंत प्राचीन है।
 (क) कथन (A) तथा कारण (R) दोनों गलत हैं।
 (ख) कथन (A) गलत है लेकिन कारण (R) सही है।
 (ग) कथन (A) सही है लेकिन कारण (R) उसकी गलत व्याख्या करता है।
 (घ) कथन (A) तथा कारण (R) दोनों सही हैं तथा कारण (R) कथन (A) की सही व्याख्या करता है।

2. निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़कर इसके आधार पर सर्वाधिक उपयुक्त उत्तर वाले विकल्प चुनकर लिखिए— (1 × 5 = 5)

परिश्रम यानी मेहनत अपना जवाब आप ही है। उसका अन्य कोई जवाब न है, न हो सकता है अर्थात् जिस काम के लिए परिश्रम करना आवश्यक हो, हम चाहें कि वह अन्य किसी उपाय से पूरा हो जाए, ऐसा हो पाना कर्त्ता संभव नहीं। वह तो लगातार और मन लगाकर परिश्रम करने से ही होगा। इसी कारण कहा जाता है कि ‘उद्योगिनं पुरुषसिंहमुपैति लक्ष्मी’ अर्थात् उद्योग या परिश्रम करने वाले पुरुष सिंहों का ही लक्ष्मी वरण करती है। सभी प्रकार की धन-संपत्तियाँ और सफलताएँ लगातार परिश्रम से ही प्राप्त होती हैं। परिश्रम ही सफलता की कुंजी है, यह परीक्षण की कस्टी पर कसा गया सत्य है। निरंतर प्रगति और विकास की मंजिलें तय करते हुए हमारा संसार आज जिस स्तर और स्थिति तक पहुँच पाया है, वह सब हाथ पर हाथ रखकर बैठे रहने से नहीं हुआ। कई प्रकार के विचार बनाने, अनुसंधान करने, उनके अनुसार लगातार योजनाएँ बनाकर तथा कई तरह के अभावों और कठिनाइयों को सहते हुए निरंतर परिश्रम करते रहने से ही संभव हो पाया है। आज जो लोग सफलता के शिखर पर बैठकर दूसरों पर शासन कर रहे हैं, आदेश दे रहे हैं, ऐसी शक्ति और सत्ता प्राप्त करने के लिए पता नहीं किन-किन रास्तों से चलकर, किस-किस तरह के कष्ट और परिश्रमपूर्ण जीवन जीने के बाद उन्हें इस स्थिति में पहुँच पाने में सफलता मिल पाई है। हाथ-पैर हिलाने पर ही कुछ पाया जा सकता है, उदास या निराश होकर बैठ जाने से नहीं। निरंतर परिश्रम व्यक्ति को चुस्त-दुरुस्त रखकर सजग तो बनाता ही है, निराशाओं से दूर रख आशा-उत्साह भरा जीवन जीना भी सिखाया करता है।

(1) परीक्षण की कस्टी पर कसे जाने से तात्पर्य है—
 (क) सत्य सिद्ध होना (ख) कथन का प्रामाणिक होना
 (ग) आंकलन प्रक्रिया तीव्र होना (घ) योग्यता का मूल्यांकन होना

(2) ‘हाथ-पैर हिलाने से कुछ पाया जा सकता है। पंक्ति के माध्यम से लेखक..... की प्रेरणा दे रहे हैं।
 (क) तैराकी (ख) परिश्रम
 (ग) परीक्षण (घ) हस्तशिल्प

(3) निम्नलिखित कथनों पर विचार कीजिए—
 (i) परिश्रम व्यक्ति को सकारात्मक बनाता है। (ii) आज संसार पतन की ओर बढ़ रहा है।
 (iii) पुरुषार्थ के बल पर ही व्यक्ति धनार्जन करता है।
 उपर्युक्त कथनों में से कौन-सा/कौन-से कथन सही है/हैं?
 (क) केवल (i) (ख) केवल (ii)
 (ग) (i) और (iii) (घ) (ii) और (iii)

(4) निम्नलिखित में से कौन-सा शब्द गद्यांश में दिए गए ‘अनुसंधान’ शब्द के सही अर्थ को दर्शाता है—
 (क) परीक्षण (ख) योजनाएँ
 (ग) अन्वेषण (घ) सिंहमुपैति

(5) निम्नलिखित में से किस कथन को गद्यांश की सीख के आधार पर कहा जा सकता है—
 (क) अल्पज्ञान खतरनाक होता है। (ख) गया समय वापस नहीं आता है।
 (ग) मेहनत से कल्पना साकार होती है। (घ) आवश्यकता आविष्कार की जननी है।

3. निर्देशनानुसार ‘पदबंध’ पर आधारित पाँच बहुविकल्पीय प्रश्नों में से किन्हीं चार प्रश्नों के उत्तर दीजिए— (1×4=4)

(1) ‘वामीरो फटती हुई धरती के किनारे चीखती हुई दौड़ रही थी।’ रेखांकित पदबंध का भेद है—
 (क) संज्ञा पदबंध (ख) सर्वानाम पदबंध

- | | |
|---|--|
| (ग) क्रिया पदबंध | (घ) विशेषण पदबंध |
| (2) 'निर्भीक और साहसी वज़ीर अली अपने अधिकार के लिए लड़ रहा था।' इस वाक्य में विशेषण पदबंध है— | |
| (क) साहसी वज़ीर अली | (ख) लिए लड़ रहा था |
| (ग) निर्भीक और साहसी | (घ) अपने अधिकार के लिए |
| (3) क्रिया पदबंध का उदाहरण छाँटिए— | |
| (क) बिल्ली ने उचककर दो में से एक अंडा तोड़ दिया। | (ख) यह काम तो हमेशा आदर्शवादी लोगों ने ही किया है। |
| (ग) दोनों कबूतर गतभर खामोश और उदास बैठे रहते हैं। | (घ) शैलेंद्र तो फिल्म-निर्माता बनने के लिए सर्वथा अयोग्य थे। |
| (4) 'बादशाह सुलेमान मानव जाति के साथ-साथ पशु पक्षियों के भी राजा हैं।' रेखांकित पदबंध का भेद है— | |
| (क) संज्ञा पदबंध | (ख) सर्वनाम पदबंध |
| (ग) विशेषण पदबंध | (घ) क्रियाविशेषण पदबंध |
| (5) 'हरिहर काका <u>धीरे-धीरे</u> चलते हुए आँगन तक पहुँचे।' रेखांकित पदबंध का भेद है— | |
| (क) संज्ञा पदबंध | (ख) क्रिया पदबंध |
| (ग) विशेषण पदबंध | (घ) क्रियाविशेषण पदबंध |
| 4. निर्देशानुसार 'रचना के आधार पर वाक्य भेद' पर आधारित पाँच बहुविकल्पीय प्रश्नों में से किन्हीं चार प्रश्नों के उत्तर दीजिए— (1×4=4) | |
| (1) 'जब उसने तताँगा को देखा तो वह फूट-फूटकर रोने लगी।' इस वाक्य का सरल वाक्य होगा— | |
| (क) तताँगा को देखते ही वह फूट-फूटकर रोने लगी। | (ख) तताँगा को देखकर वामीरो फूट-फूटकर रोने लगी। |
| (ग) वामीरो ने तताँगा को देखा और फूट-फूटकर रोने लगी। | (घ) जैसे ही वामीरो ने तताँगा को देखा वह फूट-फूटकर रोने लगी। |
| (2) 'हम जब अकेले पड़ते हैं तब अपने आप से लगातार बड़बड़ाते रहते हैं।' रचना के आधार पर वाक्य भेद है— | |
| (क) सरल वाक्य | (ख) संयुक्त वाक्य |
| (ग) मिश्रित वाक्य | (घ) सामान्य वाक्य |
| (3) 'आपके अच्छे कार्यक्रमों को सभी पसंद करते हैं।' दिए गए वाक्य का मिश्रित वाक्य होगा— | |
| (क) आपके अच्छे कार्यक्रम सभी के पसंदीदा होते हैं। | |
| (ख) जब कार्यक्रम होते ही अच्छे हैं सभी पसंद करते ही हैं। | |
| (ग) आपके कार्यक्रम इतने अच्छे होते हैं कि सभी पसंद करते हैं। | |
| (घ) आपके कार्यक्रम इतने अच्छे हैं इसलिए सभी को पसंद आते हैं। | |
| (4) निम्नलिखित वाक्यों में से संयुक्त वाक्य है— | |
| (क) आपने मुझे कारतूस दिए इसलिए आपकी जान बछारी करता हूँ। | |
| (ख) उसके अफ़साने सुन के रॉबिनहुड के कारनामे याद आ जाते हैं। | |
| (ग) वह एक छह मंजिली इमारत थी जिसकी छत पर एक सुंदर पर्णकुटी थी। | |
| (घ) ग्वालियर से बंबई की दूरी ने संसार को काफ़ी कुछ बदल दिया था। | |
| (5) 'सभी लिख चुके हैं लेकिन कनक अभी तक लिख रही है।' रचना के आधार पर इस वाक्य का भेद होगा— | |
| (क) सरल वाक्य | (ख) संयुक्त वाक्य |
| (ग) मिश्र वाक्य | (घ) विधानवाचक वाक्य |
| 5. निर्देशानुसार 'समास' पर आधारित पाँच बहुविकल्पीय प्रश्नों में से किन्हीं चार प्रश्नों के उत्तर दीजिए— (1×4=4) | |
| (1) 'महावीर' शब्द/समस्तपद कौन-से समास का उदाहरण है? | |
| (क) द्विगु समास | (ख) कर्मधारय समास |
| (ग) तत्पुरुष समास | (घ) अव्याभाव समास |
| (2) 'चंद्रखिलौना'—समस्त पद का विग्रह होगा— | |
| (क) चंद्र का खिलौना | (ख) चंद्र और खिलौना |
| (ग) चंद्र रूपी खिलौना | (घ) चंद्र के लिए खिलौना |
| (3) निम्नलिखित युग्मों पर विचार कीजिए— | |
| समस्तपद | समास |
| (i) गहप्रवेश | (i) द्वंद्व समास |

- (ii) साफ - साफ
 (iii) त्रिकोण
 (iv) मृगलोचन
- उपर्युक्त युगमों में से कौन-से सही सुमेलित हैं—
 (क) (i) और (ii)
 (ग) (ii) और (iv)
- (4) 'सत्याग्रह' शब्द के लिए सही समास- विग्रह और समास का चयन कीजिए—
 (क) सत्य और ग्रह — दुंष्ट समास
 (ग) सत्य आग्रह — अव्ययीभाव समास
- (5) 'चतुर्मुख' का समास विग्रह एवं भेद होगा—
 (क) चतुर है जो — बहुत्रीहि समास
 (ख) चार मुख — तत्पुरुष समास
 (ग) चार हैं मुख जिसके अर्थात् ब्रह्मा — बहुत्रीहि समास
 (घ) चतुराई झलकती है जिसके मुख से अर्थात् व्यक्ति विशेष — बहुत्रीहि समास
6. निर्देशानुसार 'मुहावरे' पर आधारित छह बहुविकल्पीय प्रश्नों में से किन्हीं चार प्रश्नों के उत्तर दीजिए— (1×4=4)
- (1) मुहावरे और अर्थ के उचित मेल वाले विकल्प का चयन कीजिए—
 (क) गिरह बाँधना — मार डालना
 (ग) पन्ने रंगना — व्यर्थ में लिखना
- (2) 'अयोग्य को कोई महत्वपूर्ण वस्तु मिलना' के लिए उपर्युक्त मुहावरा है—
 (क) दाँतों तले अँगुली दबाना
 (ग) अंधे की लाठी बनना
- (3) तू मित्र है या शत्रु है? जहाँ भी जाता हूँ, वहीं मेरे सामने। रिक्त स्थान की पूर्ति के लिए उपर्युक्त विकल्प का चयन कीजिए—
 (क) डेरा डालता है
 (ग) त्वारियाँ चढ़ा लेता है
- (4) पढ़ाई में मेहनत कर मैं हो सकता हूँ। उचित मुहावरे से रिक्त स्थान की पूर्ति कीजिए।
 (क) खून का घूट
 (ग) पैरों पर खड़ा होना
- (5) रेखांकित अंश के लिए कौन-सा मुहावरा प्रयुक्त करना उचित रहेगा?
 तुम सारा दिन काम में जूँटे रहते हो, कभी आराम भी कर लिया करो।
 (क) कोल्हू का बैल
 (ग) तीन तेरह होना
- (6) 'अत्यधिक दुःखी होना' अर्थ के लिए उपर्युक्त मुहावरा है—
 (क) कड़वे धूँट पीना
 (ग) कलेजा मुँह को आना
7. निम्नलिखित पद्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर के लिए सही विकल्प का चयन कीजिए— (1×5=5)
- चलो अभीष्ट मार्ग में सहर्ष खेलते हुए,
 विपत्ति, विघ्न जो पढ़े उन्हें ढकेलते हुए।
 घटे न हेलमेल हाँ, बढ़े न भिन्नता कभी,
 अतर्क एक पंथ के सतर्क पंथ हो सभी।
 तभी समर्थ भाव है कि तारता हुआ तरे,
 वही मनुष्य है कि जो मनुष्य के लिए मरे
- (1) कवि सभी को एक होकर चलने की प्रेरणा देते हैं। इससे ज्ञात होता है कि कवि के पक्षधर हैं।
 (क) निरन्वय
 (ग) क्रमान्वय
- (ख) समन्वय
 (घ) दूरान्वय

- (2) अभीष्ट मार्ग से तात्पर्य है—
 (क) स्वर्गांत मार्ग
 (ग) क्रीड़ाक्षेत्रीय मार्ग
 (ख) प्रमाणित मार्ग
 (घ) मनोवांछित मार्ग
- (3) समर्थ भाव है, दूसरों को—
 (क) सफल करते हुए स्वयं सफल होना
 (ग) शक्ति प्रदर्शन द्वारा सफलता दिलाना
 (ख) ज्ञान मार्ग बताते हुए सफल बनाना
 (घ) सफल करते हुए अपना स्वार्थ सिद्ध करना
- (4) 'भिन्नता ना बढ़े' का आशय है—
 (क) मत भिन्नता हो
 (ग) भेदभाव भिन्न हों
 (ख) मतभेद कम हो
 (घ) मतभेद अधिक हों
- (5) निम्नलिखित वाक्यों को ध्यानपूर्वक पढ़िए—
 (i) हमें मृत्यु से कभी नहीं डरना चाहिए।
 (ii) बाह्य आडबरों का विरोध करना चाहिए।
 (iii) मार्ग की विपत्तियों को ढकेलते हुए आगे बढ़ना चाहिए।
 (iv) प्राकृतिक सौंदर्य के लिए ईश्वर को धन्यवाद देना चाहिए।
 (v) हमें अपने जीवन में सकारात्मक दृष्टिकोण अपनाना चाहिए।
 पद्मांश से मेल खाते वाक्यों के लिए उचित विकल्प चुनिए—
 (क) (i), (ii), (v)
 (ख) (i), (iii), (v)
 (ग) (ii), (iii), (iv)
 (घ) (ii), (iv), (v)
8. निम्नलिखित प्रश्नों के उत्तर देने के लिए उचित विकल्प का चयन कीजिए— (1×2=2)
- (1) 'तुम्हीं राम, तुम्हीं लक्ष्मण' कवि ने ऐसा कहा है क्योंकि—
 (क) देश की रक्षा सभी देशवासियों का कर्तव्य है।
 (ख) राम और लक्ष्मण द्वारा सीता की रक्षा की गई है।
 (ग) सैनिक युद्ध भूमि में वीरगति को प्राप्त हो चुके हैं।
 (घ) आत्मबलिदान के अवसर निरंतर बने रहते हैं।
- (2) 'तव मुख पहचानूँ छिन-छिन में' का भाव है—
 (क) प्रभु की सत्ता पर संदेह न करना।
 (ख) प्रत्येक जीव में परमात्मा को देखना।
 (ग) ईश्वर के दर्शनों की अभिलाषा रखना।
 (घ) सत्मार्ग पर चलकर जीवन यापन करना।
9. निम्नलिखित गद्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर के लिए सही विकल्प का चयन कीजिए— (1×5=5)
- 'रातें दसों दिशाओं से कहेंगी अपनी कहानियाँ' पर संगीतकार जयकिशन ने आपत्ति की। उनका ख्याल था कि दर्शक 'चार दिशाएँ' तो समझ सकते हैं— 'दस दिशाएँ' नहीं। लेकिन शैलेंद्र परिवर्तन के लिए तैयार नहीं हुए। उनका दृढ़ मंतव्य था कि दर्शकों की रुचि की आड़ में हमें उथलेपन को उन पर नहीं थोपना चाहिए। कलाकार का यह कर्तव्य भी है कि वह उपभोक्ता की रुचियों का परिष्कार करने का प्रयत्न करें और उनका यकीन गलत नहीं था। यही नहीं, वे बहुत अच्छे गीत भी जो उहोंने लिखे बेहद लोकप्रिय हुए। शैलेंद्र ने झूठे अभिजात्य को कभी नहीं अपनाया। उनके गीत भाव-प्रवण थे— दुरुह नहीं। 'मेरा जूता है जापानी, ये पतलून इंगलिस्तानी, सर पे लाल टोपी रूसी, फिर भी दिल है हिंदुस्तानी'— यह गीत शैलेंद्र ही लिख सकते थे। शांत नदी का प्रवाह और समुद्र की गहराई लिए हुए। यही विशेषता उनकी ज़िंदगी की थी और यही उन्होंने अपनी फ़िल्म के द्वारा भी साबित किया था।
- (1) गीत 'रातें दसों दिशाओं से कहेंगी अपनी कहानियाँ' पर संगीतकार जयकिशन ने आपत्ति की क्योंकि उनके अनुसार—
 (क) दस दिशाओं का गहन ज्ञान दर्शकों को नहीं होगा।
 (ख) इससे दर्शकों की रुचियों का परिष्कार नहीं होगा।
 (ग) जागरूक दर्शक ऐसी स्पष्ट बातें पसंद नहीं करते थे।
 (घ) दर्शकों की रुचि के लिए उन पर उथलापन नहीं थोपना चाहिए।
- (2) 'उनका यह दृढ़ मंतव्य था कि दर्शकों की रुचि की आड़ में हमें उथलेपन को उन पर नहीं थोपना चाहिए। कलाकार का यह कर्तव्य भी है कि वह उपभोक्ता की रुचियों का परिष्कार करने का प्रयत्न करे।'
 कथन के माध्यम से ज्ञात होता है कि शैलेंद्र हैं—
 (क) दृढ़निश्चयी, सफल फ़िल्म निर्माता व कवि
 (ख) सफल फ़िल्म निर्माता, गीतकार व कवि
 (ग) समाज-सुधारक, कर्मयोगी गीतकार व कवि
 (घ) आदर्शवादी, उच्चकोटि के गीतकार व कवि
- (3) निम्नलिखित कथन (A) तथा कारण (R) को ध्यानपूर्वक पढ़िए। उसके बाद दिए गए विकल्पों में से कोई एक सही विकल्प चुनकर लिखिए।

कथन (A) : उनके गीत भाव-प्रवण थे—दुरुह नहीं।

कारण (R) : शैलेंद्र के द्वारा लिखे गीत भावनाओं से ओत-प्रोत थे, उनमें गहराई थी। गीतों की भाषा सहज, सरल थी, क्लिष्ट नहीं थी।

(क) कथन (A) तथा कारण (R) दोनों गलत हैं।

(ख) कथन (A) गलत है लेकिन कारण (R) सही है।

(ग) कथन (A) सही है लेकिन कारण (R) उसकी गलत व्याख्या करता है।

(घ) कथन (A) तथा कारण (R) दोनों सही हैं तथा कारण (R) कथन (A) की सही व्याख्या करता है।

- (4) 'मेरा जूता है जापानी.....' यह गीत शैलेंद्र ही लिख सकते थे। लेखक द्वारा ऐसा कहा जाना दर्शाता है, शैलेंद्र के प्रति उनका—

(क) कर्तव्यबोध

(ख) मैत्रीभाव

(ग) व्यक्तित्व

(घ) अवलोकन

- (5) गद्यांश के आधार पर शैलेंद्र के निजी जीवन की छाप मिलती है कि वे थे—

(क) बेहद गंभीर, उदार, दृढ़ इच्छा शक्ति और संकीर्णहृदय (ख) बेहद गंभीर, उदार, कृपण और संकीर्ण हृदय

(ग) बेहद गंभीर, भावुक, कृपण और दृढ़ इच्छा शक्ति (घ) बेहद गंभीर, उदार, दृढ़ इच्छा शक्ति और भावुक

10. निम्नलिखित प्रश्नों के उत्तर देने के लिए उचित विकल्प का चयन कीजिए— (1×2=2)

- (1) निम्नलिखित में से कौन-से वाक्य 'बड़े भाई साहब' कहानी से प्राप्त प्रेरणा को दर्शाते हैं—

(i) कथनी और करनी का अंतर हमारी स्थिति को हास्यास्पद बना सकता है।

(ii) पढ़ाई के साथ-साथ खेलकूद भी छात्र जीवन के आवश्यक अंग हैं।

(iii) केवल परीक्षा से पहले ध्यान लगाकर पढ़ लेने से प्रथम आ सकते हैं।

(iv) बड़े भाई साहब ज्ञान की बातें लेखक को आसानी से समझा देते हैं।

(क) केवल (i) (ख) (i) और (ii)

(ग) केवल (iv) (घ) (ii), (iii), (iv)

- (2) सआदत अली को अवध के तख्त पर बिठाने के लिए पीछे कर्नल का उद्देश्य था—

(क) अपने परम मित्र सआदत अली की हरसंभव सहायता करना।

(ख) जाँबाज़ योद्धा के रूप में मित्र सआदत अली को प्रसिद्ध करना।

(ग) कंपनी के वकील का कल्पना करवाने के लिए मिलकर घट्यंत्र रचना।

(घ) अप्रत्यक्ष रूप से अवध पर कंपनी का आधिपत्य स्थापित करना।

रण्ड 'ब' वर्णनात्मक-प्रश्न

11. निम्नलिखित प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर लगभग 60 शब्दों में दीजिए— (3×2=6)

- (1) भ्रमण हम सभी के जीवन का अभिन्न अंग है। अपनी व्यस्ततम दिनचर्या के बीच चैन से भेरे कुछ पल शायद हम इसी प्रकार निकाल सकते हैं। शांत वातावरण में अपने तथा अपनों के लिए जीवन व्यतीत करना आवश्यक है। आपके द्वारा इस पाठ्यक्रम में पढ़े गए पाठ में चैन भेरे पल बिताने के लिए लेखक ने क्या किया? क्या वास्तव में सभी को इसकी आवश्यकता है? अपने विचार व्यक्त कीजिए।

- (2) 'डायरी का एक पन्ना' के माध्यम से आपने गुलाम भारत के स्वतंत्रता दिवस के आयोजन के विषय में जाना। आज हम आजाद भारत में आजादी का अमृत महोत्सव मना रहे हैं। देश के प्रति अपने कर्तव्यों को बताते हुए पाठ से प्राप्त सीख का वर्णन कीजिए।

- (3) इस वर्ष आपने पाठ्यक्रम में लोककथा पर आधारित एक कहानी पढ़ी है। यह कहानी समाज की विसंगतियों को दूर करने का संदेश देती है। कथन का मूल्यांकन करते हुए अपने विचार लिखिए।

12. निम्नलिखित प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर लगभग 60 शब्दों में दीजिए— (3×2=6)

- (1) आपके द्वारा इस पाठ्यक्रम में पढ़ी गई किस कविता की अंतिम पंक्तियाँ आपको सर्वाधिक प्रभावित करती हैं और क्यों? लगभग 60 शब्दों में व्यक्त कीजिए।

- (2) कबीर और मीरा की भक्ति की विशेषताओं का उल्लेख कीजिए।

- (3) आपके पाठ्यक्रम में किस कविता में वर्षा के प्राकृतिक सौंदर्य का वर्णन किया गया है? अपने शब्दों में वर्णन कीजिए।

13. निम्नलिखित प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर लगभग 60 शब्दों में दीजिए— (3×2=6)

- (1) लोगों के बीच बहस छिड़ जाती है। उत्तराधिकारी के कानून पर जो जितना जानता है, उससे दस गुना अधिक उगल देता है। फिर

भी कोई समाधान नहीं निकलता। रहस्य खत्म नहीं होता, आशंकाएँ बनी ही रहती हैं। लेकिन लोग आशंकाओं को नज़रअंदाज़ कर अपनी पक्षधरता शुरू कर देते हैं।

हरिहर काका सभी के लिए चर्चा का केंद्र बने हुए थे। हरिहर काका मामले में गाँव वालों की राय तर्कसहित स्पष्ट कीजिए।

- (2) स्काउट परेड करते समय लेखक स्वयं को महत्वपूर्ण 'आदमी' फौजी जीवन समझने लगता था।

कथन के आलोक में अपने विचार प्रकट करते हुए बताइए कि विद्यालय जीवन में प्रशिक्षण व गतिविधियों की क्या उपयोगिता है?

- (3) बालमन किसी स्वार्थ या हिसाब से चलायमान नहीं होता। बचपन प्रेम के रिश्ते के अलावा किसी और रिश्ते को कुबूल नहीं करता। 'टोपी शुक्ला' पाठ में टोपी अपने परिवार के एक सदस्य को बदलने की बात करता है। उसकी सोच के आधार पर उसकी मनोदशा का वर्णन कीजिए।

14. निम्नलिखित में से किसी एक विषय पर संकेत-बिंदुओं के आधार पर लगभग 100 शब्दों में अनुच्छेद लिखिए— (5×1=5)

- (1) विद्यार्थी जीवन और चरित्र निर्माण

संकेत-बिन्दु—● संपूर्ण जीवन की आधारशिला ● चरित्र निर्माण की आवश्यकता ● देश व समाज के लिए उपयोगी

- (2) ट्वेंटी-ट्वेंटी क्रिकेट का रोमांच

संकेत-बिन्दु—● मैच कब और कहाँ ● टीमों का संघर्ष ● दर्शकों की प्रतिक्रिया

- (3) दौड़िती हुई ज़िंदगी

संकेत-बिन्दु—● कैसे ● कारण ● आवश्यकताओं में वृद्धि ● क्या करें ?

15. निम्नलिखित में से किसी एक विषय पर लगभग 100 शब्दों में पत्र लिखिए— (5×1=5)

- (1) आप वेणु राजगोपाल/वेणी राजगोपाल हैं। हिंदुस्तान टाइम्स दिल्ली के संपादक के नाम एक पत्र लिखकर सामाजिक जीवन में बढ़ रही हिंसा पर अपने विचार व्यक्त कीजिए। (शब्द-सीमा - लगभग 100 शब्द)

अथवा

- (2) आपके विद्यालय में खेल की उपयुक्त सामग्री है तथा समय-समय पर सभी स्तरों पर मैच का आयोजन भी किया जाता है। विद्यालय के खेल कप्तान होने के नाते प्रधानाचार्य के प्रति आभार व्यक्त करते हुए पत्र लिखिए।

16. निम्नलिखित में से किसी एक विषय पर लगभग 80 शब्दों में सूचना लिखिए— (4×1=4)

- (1) आप विद्यालय के सांस्कृतिक सचिव हैं। बाल दिवस समारोह के अवसर पर विद्यालय में आयोजित होने वाले सांस्कृतिक कार्यक्रम के विवरण सहित सूचना तैयार कीजिए।

अथवा

- (2) आप रजत चट्टोपाध्याय/रजनी रस्तोगी, मोहल्ला सुधार समिति के सचिव हैं। स्वच्छता अभियान के अंतर्गत 'स्वच्छता पखवाड़ा' कार्यक्रमों में भाग लेने के इच्छुक लोगों के लिए एक सूचना तैयार कीजिए।

17. निम्नलिखित में से किसी एक विषय पर लगभग 60 शब्दों में विज्ञापन तैयार कीजिए— (3×1=3)

- (1) स्वास्थ्य मंत्रालय द्वारा योग दिवस के अवसर के प्रचार प्रसार के लिए एक आकर्षक विज्ञापन लगभग 60 शब्दों में तैयार कीजिए।

अथवा

- (2) लोकल फॉर वोकल (स्थानीय उत्पादों का प्रयोग) के प्रचार-प्रसार के लिए एक आकर्षक विज्ञापन लगभग 60 शब्दों में तैयार कीजिए।

18. निम्नलिखित में से किसी एक विषय पर लगभग 100 शब्दों में लघुकथा/ई-मेल लिखिए— (5×1=5)

- (1) 'जैसा करोगे वैसा भरोगे' विषय पर लघु कथा लगभग 100 शब्दों में लिखिए।

अथवा

- (2) आप श्वेता कपूर/शैलेश कपूर हैं। आप वर्तमान परिप्रेक्ष्य में हिंदी की उपयोगिता जानते हैं इसीलिए ग्यारहवीं कक्षा में विज्ञान विषय के साथ भी हिंदी अतिरिक्त विषय के रूप में पढ़ना चाहते हैं। अपने प्रधानाचार्य को विद्यालय के ई-मेल पते पर ई-मेल लिखकर अनुमति प्राप्त कीजिए। (शब्द-सीमा लगभग 100 शब्द)



उत्तरमाला

प्रतिदर्श प्रश्न-पत्र-१

(सी.बी.एस.ई. अंक योजना 2022-23 सहित)
हिन्दी 'ब' (085)

खण्ड 'अ' वस्तुपरक-प्रश्न

1.	अपठित गद्यांश	[1 × 5 = 5]
(1)	विकल्प (घ) सही है। व्याख्या—भारत को 'अनोखा राष्ट्र' कहने से लेखक का तात्पर्य विभिन्नता में एकता का प्रतीक है।	1
(2)	विकल्प (ग) सही है।	1
(3)	विकल्प (ग) सही है। व्याख्या—गद्यांश हमें यह संदेश देता है कि भारतीय सभ्यता व संस्कृति का संरक्षण आवश्यक है क्योंकि सभ्यता और संस्कृति मानव जीवन का परिचायक है।	1
(4)	विकल्प (क) सही है।	1
(5)	विकल्प (ग) सही है।	1
2.	अपठित गद्यांश	[1 × 5 = 5]
(1)	विकल्प (ख) सही है।	1
(2)	विकल्प (ख) सही है।	1
(3)	विकल्प (ग) सही है।	1
(4)	विकल्प (ग) सही है।	1
(5)	विकल्प (ग) सही है। व्याख्या—गद्यांश की सीख के आधार पर कहा जा सकता है कि मेहनत का फल मीठा होता है अर्थात् मेहनत से कल्पना साकार होती है।	1
3.	पदबंध	[1 × 4 = 4]
(1)	विकल्प (ग) सही है।	1
(2)	विकल्प (ग) सही है। व्याख्या—'निर्भीक और साहसी' वाक्य में विशेषण पदबंध है क्योंकि इसमें पदबंध की विशेषता बताई जा रही है।	1
(3)	विकल्प (ग) सही है।	1
(4)	विकल्प (क) सही है।	1
(5)	विकल्प (घ) सही है।	1
4.	रचना के आधार पर वाक्य के भेद	[1 × 4 = 4]
(1)	विकल्प (क) सही है।	1
(2)	विकल्प (ग) सही है। व्याख्या—मिश्र वाक्य में प्रधान वाक्य को आश्रित उपवाक्य से जोड़ने के लिए जो आपस में कि, जो, जब, तब, जहाँ आदि का प्रयोग किया जाता है।	1
(3)	विकल्प (ग) सही है।	1

(4) विकल्प (क) सही है।	1
(5) विकल्प (ख) सही है।	1
5. समास	[1 × 4 = 4]
(1) विकल्प (ख) सही है।	1
व्याख्या—कर्मधारय समास में प्रथम पद विशेषण या उपमान होता है तथा द्वितीय पद विशेष्य या उपमेय होता है।	
(2) विकल्प (ग) सही है।	1
(3) विकल्प (ग) सही है।	1
(4) विकल्प (घ) सही है।	1
(5) विकल्प (ग) सही है।	1
6. मुहावरे	[1 × 4 = 4]
(1) विकल्प (ग) सही है।	1
(2) विकल्प (ख) सही है।	1
(3) विकल्प (घ) सही है।	1
(4) विकल्प (ग) सही है।	1
(5) विकल्प (क) सही है।	1
(6) विकल्प (ग) सही है।	1
7. पद्य-खण्ड	[1 × 5 = 5]
(1) विकल्प (ख) सही है।	1
व्याख्या—कवि सभी को एक होकर चलने की प्रेरणा देते हैं। इससे ज्ञात होता है कि कवि समन्वय के पक्षधर हैं।	
(2) विकल्प (घ) सही है।	1
(3) विकल्प (क) सही है।	1
व्याख्या—समर्थ भाव है कि केवल अपने को सफ़ल न करना बल्कि दूसरों को सफ़ल करते हुए स्वयं सफ़ल होना।	
(4) विकल्प (ख) सही है।	1
(5) विकल्प (ख) सही है।	1
8. (1) विकल्प (क) सही है।	[1 × 2 = 2]
व्याख्या—कवि का मानना है कि तुम्हीं राम, तुम्हीं लक्ष्मण हो अर्थात् देश की रक्षा सभी देशवासियों का कर्तव्य है।	
(2) विकल्प (क) सही है।	1
9. गद्य खण्ड	[1 × 5 = 5]
(1) विकल्प (क) सही है।	1
(2) विकल्प (घ) सही है।	1
(3) विकल्प (घ) सही है।	1
(4) विकल्प (घ) सही है।	1
(5) विकल्प (घ) सही है।	1
व्याख्या—इस गद्यांश में शैलेंद्र के निजी जीवन की छाप मिलती है क्योंकि वे बेहद गंभीर, उदार और भावुक व्यक्ति थे।	
10. (1) विकल्प (ख) सही है।	[1 × 2 = 2]

(2) विकल्प (ख) सही है।

1

रण्ड'ब' वर्णनात्मक-प्रश्न

11. (1) पाठ—पतझड़ में टूटी पत्तियाँ पर आधारित

- चाय पीने की परम्परा
- चानोयू, शांत वातावरण में वर्तमान की समझ
- शिक्षार्थी अपने मतानुसार लिखेंगे

व्याख्यात्मक हल :

लोखक ने जापानियों के दिमाग में 'स्पीड' का इंजन लगाने की बात इसलिए कही है, क्योंकि जापानियों के जीवन की रफ़तार बहुत बढ़ गई है। वहाँ कोई चलता नहीं बल्कि दौड़ता है। वहाँ कोई बोलता नहीं, बकता है। जब वे अकेले पड़ जाते हैं, तो स्वयं से ही बढ़बढ़ाने लगते हैं। वे एक महीने का काम एक दिन में करने की कोशिश करते हैं। उन्होंने विश्व विकसित देशों की अग्रणी श्रेणी में आने की तान ली है।

3

(2) ● देश की एकता अखंडता बनाए रखने के लिए कटिबद्ध

- देश-भक्ति व देश के विकास के लिए प्रयासरत
- पाठ से सीख—क्रांतिकारियों की कुर्बानियों को याद करके एक संगठित समाज
- कृत संकल्प संगठित समाज द्वारा सभी कुछ संभव

व्याख्यात्मक हल :

'डायरी का एक पन्ना' नामक पाठ स्वतंत्रता का मूल्य समझाने एवं देश प्रेम व राष्ट्रभक्ति को जगाने तथा प्रगाढ़ करने का संदेश छिपाए हुए है। पाठ में 1931 के गुलाम भारत के लोगों की सच्ची तस्वीर प्रस्तुत की गई है कि किस प्रकार निहत्ये किन्तु संगठित भारतवासियों के मन में स्वतंत्रता पाने की भावना बलवती हुई और इसे पाने के लिए लोगों ने न लाठियों की चिन्ता की और न ही जेल जाने की।

3

(3) ● तताँग-वामीरो कथा

- रूढ़ियों का बंधन बोझ बन जाना
- तताँग-वामीरो की त्यागमयी मृत्यु से परिवर्तन
- शिक्षार्थी अपने मतानुसार लिखेंगे।

व्याख्यात्मक हल :

निकोबार द्वीप समूह के विभक्त होने के बारे में निकोबारियों का यह विश्वास है कि प्राचीन काल में ये दोनों द्वीप एक ही थे। इनके विभक्त होने में तताँग और वामीरो की प्रेम कथा की त्यागमयी मृत्यु है, जो सुखद परिवर्तन के लिए थी। रूढ़ियाँ जब बंधन बन बोझ बनने लगें, तब वास्तव में उनका टूट जाना ही उचित है क्योंकि रूढ़ियाँ व्यक्ति को बंधनों में जकड़ लेती हैं जिससे व्यक्ति का विकास बन्द हो जाता है।

3

12. (1) "दुःख संताप से व्यक्ति चित को न दो सांत्वना नहीं सही पर इतना हो दुःख को मैं कर सकूँ सदा जय!"

आत्मत्राण कविता की प्रस्तुत पंक्तियों में कवि र्खोङ्नाथ टैगोर ईश्वर से कहते हैं कि मैं तो आपसे यह विनती कर रहा हूँ, मुझे आप इतनी शक्ति दें कि मैं इन मुसीबतों को देखकर घबराऊँ ना और इनका डटकर सामना करूँ। जब मुझे दुःख झेलना पड़े, तो भले ही आप मेरे विचलित मन को सांत्वना न दो परन्तु मुझे शक्ति देना कि मैं दुःख पर विजय प्राप्त कर सकूँ।

3

(2) ● कबीर—निर्गुण भक्ति के प्रवर्तक

- धर्म के बाह्य आड़बरों पर गहरी और तीखी चोट
- आत्मा परमात्मा के विरह-मिलन के भावपूर्ण गीत
- ईश्वर के निर्विकार, अरुप का वर्णन
- मीरा—दैन्य और माधुर्य भाव की भक्ति
- आराध्य से मनुहार और अवसर आने पर उलाहना भी
- कृष्ण के रूप-सौंदर्य का वर्णन
- गिरधर गोपाल के अनन्य और एकनिष्ठ प्रेम से अभिभूत

3

- (3) ● सुमित्रानंदन पंत द्वारा रचित कविता 'पर्वत प्रदेश में पावस'
 ● प्राकृतिक सौंदर्य का अद्भुत वर्णन
 ● पहाड़ों की अपार पृथ्वी, आसपास बहते झरने
 ● पाठक सब कुछ भूल कर उसी में लीन रहना चाहते हैं

व्याख्यात्मक हल :

पावस ऋतु में प्रकृति के मनोहारी दृश्य का वर्णन किया गया है—

- (i) पर्वत, पहाड़, ताल, झरने आदि भी मनुष्यों की ही भाँति भावनाओं से ओत-प्रोत दिखाई देते हैं।
 (ii) पर्वत ताल के जल में अपना महाकार देखकर हैरान दिखाई देते हैं।
 (iii) पर्वतों से बहते हुए झरने मोतियों की लड़ियों से प्रतीत होते हैं।
 (iv) बादलों की ओट में छिपे पर्वत मानों पंख लगाकर कहीं उड़ गए हों।

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13. (1) ● गाँव वालों की अलग-अलग राय
 ● दो दल बन गए थे।

● गाँव में एक तरफ़ चटोरे किस्म के लोग थे जो ठाकुरबारी में प्रसाद के बहाने तर माल खाते थे। वे महंत के पक्षधर थे। वे चाहते थे कि हरिहर काका को अपनी जमीन ठाकुरबारी के नाम लिख देनी चाहिए। इससे उन्हें पुण्य मिलेगा तथा उनकी कीर्ति स्थायी रहेगी।
 ● दूसरा दल ठाकुरबारी के धार्मिक पांचंद को भली-भाँति जानने वालों का था। वे भाइयों के परिवार के समर्थक थे। उनकी राय थी कि हरिहर काका को अपनी जमीन भाइयों के नाम लिख देनी चाहिए। उन्हें यही राय न्यायपूर्ण प्रतीत होती थी।

3

- (2) ● धोबी की धुली वर्दी, पॉलिश किए जूतों को पहनकर फौजी जवान
 ● मास्टर प्रीतमचंद द्वारा लेफ्ट- राइट कहते हुए परेड करवाना बूटों की एड़ियों को दाढ़-बाएँ मोड़कर ठक-ठक करके चलना
 ● विद्यालय जीवन में प्रशिक्षण व गतिविधियों की अत्यधिक उपयोगिता है। गतिविधियों द्वारा बच्चे खेल-खेल में महत्वपूर्ण तथ्यों को भली-भाँति समझते हैं तथा आनंदपूर्ण वातावरण में शिक्षा ग्रहण करते हैं। उनमें सहयोग, सहनशीलता, परोपकार की भावना जागृत होती है।

3

- (3) ● प्रेम केवल अपनापन देखता है, जाति या धर्म नहीं
 ● टोपी शुक्ला को अपनेपन की तलाश थी जो उसने इफ़्फ़न की दादी में देखी
 ● टोपी को इफ़्फ़न की दादी बहुत अच्छी लगती थी और अपनी दादी से नफरत थी, इसीलिए टोपी ने अपनी दादी को इफ़्फ़न की दादी से बदलना चाहा
 ● इफ़्फ़न की दादी के प्यार व अपनेपन से वह बहुत प्रभावित
 ● स्वयं की दादी सदैव डाँटती रहती और कभी भी उसके मनोभावों को समझने का प्रयास नहीं करती

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14. अनुच्छेद—

(5×1=5)

विद्यार्थी जीवन और चरित्र निर्माण

मानव जीवन की सबसे अधिक मधुर तथा सुनहरी अवस्था विद्यार्थी जीवन है। सरल, चिंता रहित, उत्साहपूर्ण, आशाओं से भी यह आयु बहुत महत्वपूर्ण होती है। विद्यार्थी जीवन ही सरे जीवन की नींव है। विद्यार्थी का मुख्य कर्तव्य विद्या को ग्रहण करना है। इस जीवन में वह अपने लिए, माता-पिता तथा परिवार के लिए अपने समाज के लिए और अपने राष्ट्र के लिए तैयार हो रहा होता है। आलस्य विद्यार्थी का सबसे बड़ा शान्ति है। उसे आलस्य से दूर रहकर समय का सटुपयोग करना चाहिए जो विद्यार्थी समय का सटुपयोग नहीं करते वे जीवन में सफ़ल नहीं हो पाते। उसे अच्छी आदर्तें अपनानी चाहिए। बड़ों का सम्मान करना चाहिए, मीठा बोलना चाहिए, पर्यावरण सुधार के कार्यक्रमों में बढ़-चढ़कर हिस्सा लेना चाहिए।

5

ट्वेंटी-ट्वेंटी क्रिकेट का रोमांच

आज क्रिकेट दुनिया का सर्वाधिक लोकप्रिय खेल बन चुका है। दर्शकों की क्रिकेट के प्रति दीवानगी बढ़ती ही जा रही है। अत्यधिक रोमांच एवं कम समय अन्तराल के कारण अब बीस-बीस ओवरों तक सीमित क्रिकेट सर्वाधिक लोकप्रिय हो गया है। इसे ट्वेंटी-ट्वेंटी क्रिकेट की संज्ञा दी जाती है। भारत ने अपना 20-20 मैच। दिसम्बर, 2006 को जोहांसबर्ग में दक्षिण अफ्रीका के विरुद्ध खेला था जिसमें यह 6 विकेट से विजयी रहा था। ट्वेंटी-ट्वेंटी क्रिकेट विश्व कप का आयोजन प्रत्येक दो वर्ष के पश्चात् किया जाता है। क्रिकेट के इस प्रारूप सम्बन्धी नियमों को बनाकर उन्हें लागू करने की जिम्मेदारी अन्तर्राष्ट्रीय क्रिकेट परिषद् निभाता है। इसका मुख्यालय दुबई में है।

5

(3)

दौड़ती हुई ज़िंदगी

वर्तमान में जीवन का हाल यह है कि यहाँ चीज़े सरपट भाग रही हैं। लोग जल्दी में हैं। उन्हें डर है कि कहाँ थीमें पड़ गए तो आगे बढ़ने की रेस में पीछे न छूट जाएँ। इस आपाधापी में वे तमाम तरह की गड़बड़ियाँ कर देते हैं। इसी तरह के जीवन ने व्यक्ति को लापरवाह एवं अस्त-व्यस्त बनाया है। न सोने का कोई टाइम है, न जागने का। न काम की कोई जबाबदेही और न दिनचर्या का अता-पता। हमें अस्त-व्यस्त हमारी सोच करती है, दूसरा कोई नहीं। अपने जीवन के हर-पल को सार्थक बनाने के लिए व्यस्त भले ही बने, लेकिन अस्त-व्यस्त नहीं। सही समय पर सही कार्य करना ही संतुलित जीवन का आधार है।

5

15. औपचारिक पत्र—**(5×1=5)**

हिन्दुस्तान टाइम्स

नई दिल्ली

संपादक

विषय—सामाजिक जीवन में बढ़ती हिंसा

मान्यवर

सविनय निवेदन यह है कि हमारे समाज में महिलाओं को आज भी वह स्थान प्राप्त नहीं है जो पुरुषों को है। आज भी पुरुष का प्रभुत्व स्त्री पर क्रायम है। स्त्री को शारीरिक पीड़ा दी जाती है। साथ ही उसके साथ दुर्व्यवहार करके उसे अपमानित भी किया जाता है। पुरुष प्राप्त दहेज से असंतुष्ट हैं जिसके कारण वे स्त्रियों के साथ मारपीट भी करते हैं, अतः आपसे निवेदन है कि इस विषय से सम्बन्धित लेख को आप अपने समाचार-पत्र में स्थान दें, जिससे लोगों की मानसिकता ठीक हो सके। आपकी अति कृपा होगी।

5

क. ख. ग.

दिनांक—2022

अथवा

सेवा में,

श्रीमती प्रधानाचार्य

राजकीय वरिष्ठ विद्यालय

ज्वाला टैंडी

नई दिल्ली—110005,

विषय—प्रधानाचार्य को आभार पत्र

आदरणीय

मैं सोनू जो कि आपके विद्यालय के क्रिकेट टीम का कप्तान हूँ। आपने समय-समय पर विद्यालय में खेल का आयोजन कराया, जिसमें हमारी टीम ने हिस्सा लिया और विजय भी हुई। आपने कई खेल प्रतियोगिताओं का भी आयोजन किया जिसमें पड़ोसी विद्यालयों की टीमों ने भी भाग लिया। उस खेल प्रतियोगिता में हमारे विद्यालय की टीम विजयी रही जिसके लिए मैं अपनी पूरी टीम की तरफ से आपका आभार व्यक्त करता हूँ। आपकी अति कृपा होगी।

क. ख. ग.

कप्तान, क्रिकेट टीम

दिनांक—2022

5

16. सूचना—**(4×1=4)****केन्द्रीय विद्यालय, जलवायु बिहार, दिल्ली****सूचना****सांस्कृतिक कार्यक्रम का आयोजन**

आपको यह जानकर अतीव वर्ष होगा कि आपके विद्यालय में बाल दिवस समारोह के अवसर पर सांस्कृतिक कार्यक्रम का आयोजन किया जा रहा है जिसमें अन्य विद्यालय के बालकों को भी आमंत्रित किया गया है—

दिनांक— 14 नवंबर

समय—सायं 7 बजे

स्थान—विद्यालय परिसर

प्रत्यूष

(सचिव)

सांस्कृतिक इकाई

4

अथवा

गौतमबुद्ध मोहल्ला

उ. प्र.

सूचना

स्वच्छता के प्रति जागरूकता अभियान

आपको यह जानकर अतीव वर्ष होगा कि आपके मोहल्ले में स्वच्छता पखवाड़ा अभियान शुरू होने वाला है। इसके द्वारा लोगों को साफ़-सफाई के प्रति जागरूक किया जाएगा कि पखवाड़ा को हमेशा स्वच्छ रखना चाहिए।

दिनांक— 15 सितम्बर

समय—सुबह 10 बजे

स्थान—गौतम बुद्ध मोहल्ला

प्रत्यूष

(सन्चिव)

मोहल्ला सुधार समिति

4

17. विज्ञापन—

(3×1=3)

5 सितम्बर 20xx

प्रातः 7:00 बजे

अन्तर्राष्ट्रीय योग दिवस

इस योग दिवस के अवसर पर आइए, हम सब मिलकर अपने जीवन में नियमित रूप से योग को अपनाएं, स्वस्थ जीवन की रचना करें।

अ. ब. स.

3

अथवा

एक कुम्हार की विनती

बनाकर दिए मिट्टी के,

ज़रा सी आस पाली है।

मेरी मेहनत खरीदो लोगों,

मेरे घर भी दिवाली है।

आप एक दीपक इनसे खरीदेंगे,

इनके चेहरे भी चकरी, फुलझड़ी से ज्यादा चमकेंगे।

3

18. लघुकथा अथवा ई-मेल

(5×1=5)

बहुत समय पहले की बात है। शहर से दूर गाँव में एक दुकानदार था, जो अपने ही गाँव के एक व्यक्ति से रोज़ाना 1 किलो मक्खन खरीदा करता था। वो दुकानदार कई सालों से उस व्यक्ति से मक्खन की खरीदारी कर रहा था।

एक दिन उस दुकानदार ने सोचा कि मैं रोज़ इस व्यक्ति से मक्खन खरीदता हूँ लेकिन मैंने बहुत समय से इसके मक्खन का वजन तौल कर नहीं देखा। उसने तौला तो 100 ग्राम कम था। उस दुकानदार को काफी गुस्सा आया। वो व्यक्ति गुस्से में गाँव की पंचायत के पास गया और उसने उस व्यक्ति की शिकायत कर दी। पंचायत ने कहा कि तुम इस दुकानदार को देने वाले मक्खन के वजन में हेरा-फेरा करते हो। क्या तुम्हें अपनी सफ़ाई में कुछ कहना है? वो व्यक्ति बोला कि मैं गरीब आदमी हूँ। मेरे पास वजन तौलने के लिए सही माप नहीं है। मैं रोज़ इस दुकानदार से अपने लिए 1 किलो गेहूँ खरीदता हूँ और अगले दिन उसी गेहूँ से मक्खन तौलता हूँ। अब आपको जो पूछना है इस दुकानदार से पूछिए।

5

अथवा

From : Shwetakapoor@gmail.com

To : Poonamboghel@gmail.com

CC : rahul@gmail.com

विषय—वर्तमान परिप्रेक्ष्य में हिन्दी की उपयोगिता

मान्यवर, मेरा नाम श्वेत कपूर है और मैं विज्ञान की छात्रा हूँ। ग्याहरवाँ कक्षा के सभी विद्यार्थी विज्ञान के साथ-साथ अतिरिक्त विषय के रूप में हिन्दी विषय को पढ़ना चाहते हैं। आपसे निवेदन है कि हमें हिन्दी विषय को पढ़ने की अनुमति प्रदान करें, क्योंकि हिन्दी भाषा हमारी मातृ-भाषा है।

धन्यवाद

अ. ब. स.

उ. प्र.

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