ALLEN® Mumbai, Maharashtra

SSC BOARD SAMPLE PAPER

SUBJECT: SCIENCE-I **CLASS: X**
MAX.MARKS: 40 **DURATION: 2 Hrs.**

Q.1 A Write the correct alternative (1 marks each) **4M**

i. Near-sightedness can be corrected using
(A) Cannot be corrected because it is genetic disease (B) Plane mirror
(C) Concave lens (D) Convex lens

ii. The magnification 'm' product by a convex lens when the object is placed at a distance 2f from the lens is given by.
(A) $m = +1$ (B) $m = -1$ (C) $m = -2$ (D) $m = +2$

iii. In_____ appliance, Fleming's Right hand rule is used.
(A) Electric fan (B) Mixer (C) Computer (D) Electric Generator

iv. Which of the following element exist as liquid at room temperature?
(A) Sodium (B) Iodine (C) Bromine (D) Chlorine

v. There are _____attached on the both sides of an artificial satellite as wings
(A) Solar photovoltaic cells (B) Fuel tanks (C) Motors (D) Cameras

Q.1 B Answer the following: (1 mark each) **4M**

i. Match the Columns

Column I	**Column II**
(i) Electric fuse	(a) Chemical effect of electric current
(ii) Electric fan	(b) Heating effect of electric current
	(c) Electromagnetism

ii. Complete the co-relation:
PbI_2 : yellow :: $BaSO_4$: _____

iii. Complete the analogy.
Cool air: High refractive index :: Hot air :.....

iv. Fill in the blank.
Wavelength of blue light is close to _____ nm.

v. State True or False:
While launching a satellite in its orbit , the critical velocity is given to the satellite in tangential direction.

Q.2 A Give scientific reasons. (Any two) (2 marks each) **4M**

i. Tungsten metal is used to make a solenoid type of coil in an electric bulb.
ii. To prevent rancidity we should store packaged food in are tight containers
iii. Metallic character increases down the group.

Q.2 B Answer the following : (Any three) (2 marks each) **6M**

i. Explain anomalous behaviour of water .
ii. Complete the following reaction:
$CH_3 - CH_2 - OH \xrightarrow[K_2Cr_2O_7/H_2SO_4]{[O]}$
iii. Distinguish between Gravitational constant (G) and acceleration due to gravity (g).

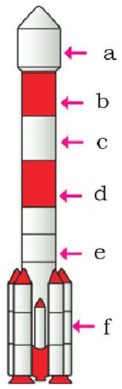
iv. Complete the following table

Indian Satellites	Functions	Satellite launcher
IRS	Monitoring and management of natural resources and disaster management	(a) …….
EDUSAT	Used in the field education	(b) …….
IRNSS	(c) ……	PSLV
(d) …….	Establish Communication between different locations in the world	GSLV

v. Write short notes on position of isotopes in the Mendeleev's and the modern periodic table.

Q.3 A Answer the following question: (Any five) (3 mark each) **15M**

i. Label the below diagram



ii. An element X (atomic number 17) reacts with an element Y (atomic number 20) to form a divalent halide.
(a) Where in the periodic table are elements X and Y placed?
(b) Classify X and Y as metal (s), non-metal (s) or metalloid (s).
(c) What will be the nature of the oxide of element Y? Identify the nature of bonding in the compound formed.

iii. Complete the following table

	Condition	**Its effect**	**Diagram**
1.	When a light ray passes from air to glass	(a) ……..	(b) ……..
2.	When a light ray passes from glass to water	(c) ……..	(d) ……..
3.	When a light ray is incident normally at the boundary between air and glass i.e, i=0	(e) ……..	(f) ……..

iv. With the help of diagram explain electrolytic reduction of alumina

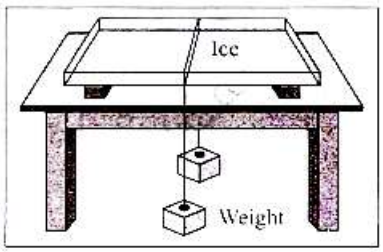
v. Balance the following chemical equation:

(a) $H_2O_2 \xrightarrow{\text{Sunlight}} H_2O + O_2$

(b) $H_2S_2O_7 + H_2O \rightarrow H_2SO_4$

(c) $Pb(NO_3)_2 + KI \rightarrow PbI_2 + KNO_3$

vi. Observe the figure and answer the questions given below:

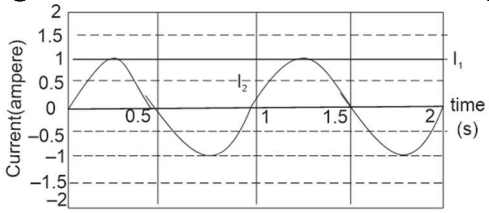


(i) Name the phenomenon shown in the figure
(ii) Define the above phenomenon
(iii) What is an example of regelation in real life?

vii. Complete the given table

A	B	C
(i) $CH_3 - CH_3 + Cl_2 \rightarrow$		Substitution reaction
(ii)	$3CO_2 + 4H_2O$	
(iii) $CH_3 - CH = CH - CH_3 + Br_2 \rightarrow$	$CH_3 - \underset{Br}{CH} - \underset{Br}{CH} - CH_3$	
(iv)	$CH_3CH_2COONa + H_2O$	

viii. Observe the graphical diagram given below and answer the following questions.

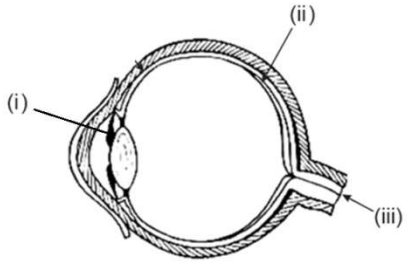


(i) Name the current (I_1) (ii) Name the current (I_2)

(iii) What difference in I_1 and I_2 can be observed from the above graph?

Q.4 Long answer type question (Any One) 5M

i. **(a)** Label the parts of the following diagram of the human eye and state the functions of those parts



(b) Name the screen at which the maximum amount of incident light is refracted?
(c) State the nature of the image formed of the object on the screen inside the eye.

ii. Complete the following table:

S No	IUPAC Name	Structural Formulae
1.	Pent-2-ene	
2.		$CH_3CH_2CH_2COOH$
3.	Ethanamine	
4.		$H - \overset{O}{\overset{\|\|}{C}} - H$
5.		Pentan-2-ol

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SSC BOARD SAMPLE PAPER

SUBJECT:MATHS-I (ALGEBRA) **CLASS: X**
MAX.MARKS: 40 **Duration: 2 HRS.**

Q.1 A **Choose the correct alternative from the options given and write exact alphabetical letter to indicate the answer:** **4M**

i) Find the value of $\begin{vmatrix} 5 & 3 \\ -7 & -4 \end{vmatrix}$.

a) 1 **b)** -1 **c)** 2 **d)** 3

ii) Which one is the quadratic equation?

a) $\frac{5}{x} - 3 = x^2$ **b)** $x(x+5) = 2$

c) $n - 1 = 2n$ **d)** $\frac{1}{x^2}(x+2) = x$

iii) The sequence $-10, -6, -2, 2, \ldots\ldots$.

a) Is an A.P., Reason $d = -16$ b) is an A.P., reason $d = 4$

c) is an A.P., Reason $d = -4$ d) is not an A.P.

iv) A die is rolled. What is the probability that the number appearing on upper face is less than 3?

a) $\frac{1}{6}$ **b)** $\frac{1}{3}$ **c)** $\frac{1}{2}$ **d)** 0

Q.1 B **Solve the following questions :** **4M**

i) For simultaneous equations in variables x and y, $D_x = 49$, $D_y = -63$, $D = 7$ then what is $x = ?$

ii) Find the sum of first n natural numbers.

iii) On certain article if rate of CGST is 9% then what is the rate of SGST? and what is the rate of GST?

iv) A box contains 5 red, 8 blue and 3 green pens. Rutuja wants to pick a pen at random. What is the probability that the pen is blue?

Q.2 A **Complete the following activities. (Any two)** **4M**

i) $5x + 3y = 9$ …….. (1)

$2x - 3y = 12$ ……(II)

Let's add equations (I) and (II),

$5x + 3y = 9$

$+$

$2x - 3y = 12$

$\square x = \square$

$\square$

$x = \frac{\square}{\square}$ $x = \square$

$\square$

Place x = 3 in equation (I),

$5\times\square+3y=9$

$3y=9-\square$

$3y=\square$

$y=\frac{\square}{3}$

$y=\square$

$\therefore$ Solution is (x, y) = $(\square,\square)$

ii) If x = 5 is a root of equation $kx^2-14x-5=0$ then find the value of k by completing the following activity.

Solution: One of the roots of equation $kx^2-14x-5=0$ is $\square$.

$\therefore$ Now Let $x=\square$ in the equation.

$k\square^2-14\square-5=0$

$\therefore$ $25k-70-5=0$

$25k-\square=0$

$25k=\square$

$\therefore$ $k=\frac{\square}{\square}=3$

iii) Smita has invested ` 12,000 and purchased shares of FV ` 10 at a premium of ` 2. Find the number of shares she purchased. Complete the given activity to get the answer.

Solution: FV = ` 10, Premium = `2.

$\therefore$ $MV=FV+\square=\square+\square=\square$

$\therefore$ Number of shares = $\frac{\text{Total investment}}{MV}=\frac{12000}{\square}=\square$ shares

Ans. Smita has purchased $\square$ shares.

Q.2 B **Solve the following questions. (Any four)** **8M**

i. 3a + 5b = 26; a + 5b = 22.

ii. Find the 19th term of the following A.P.

7, 13, 19, 25, ……

iii Find k if x = 3 is a root of equation $kx^2-10x+3=0$.

iv. 'M/s. Real Paint' sold 2 tins of lustre paint and taxable value of each tin is ` 2800. If the rate of GST is 28%, then find the amount of CGST and SGST charged in the tax invoice.

v. Observe the following table and find Mean:

Assumed mean A = 300

Class	**Class mark** x_i	$d_i = x_i - A$ $d_i = x_i - 300$	**Frequency**	**Frequency x Deviation** $f_i d_i$
200-240	220	-80	5	-400
240-280	260	-40	10	-400
280-320	$300 \rightarrow A$	0	15	0
320-360	340	40	12	480
360-400	380	80	8	640
Total			$\sum f_i = 50$	$\sum f_i d_i = 320$

Q.3 A **Complete the following activities (Any one)** **3M**

i Fill in the boxes with the help of given information:

Tax invoice of services provided (Sample)
Food Junction, Khed-Shivapur, Pune Invoice No.58
Mob. No. 7588580000, email-ahar.khed@yahoo.com
GSTIN : 27AAAAA5555B1ZA Invoice Date – 25 Feb, 2020

SAC	**Food Items**	**Qty**	**Rate (in `)**	**Taxable amount**	**CGST**		**SGST**	
9963	Coffee	1	20	20.00	2.5%	` 0.50	2.5%	
9963	Masala Tea	1	10	10.00		` 0.25	2.5%	
9963	Masala Dosa	2	60		2.5%		2.5%	` 3.00
			Total	**150.00**				**` 3.75**
							Grand Total	**= ` 157.50**

ii Complete any one activity and rewrite it:

Form a 'Road Safety Committee' of two, from 2 boys (B_1, B_2) and 2 girls (G_1, G_2)

Complete the following activity to write the sample space:

(a) Committee of 2 boys = { }

(b) Committee of 2 girls = { }

(c) Committee of one boy and one girl

= {B_1G_1, B_1G_2, , }

(d) ∴ Sample space (S) =

{(B_1B_2), (B_1G_1), , , (B_2G_2), (G_1G_2)}

Q3.B **Solve the following questions (Any two)** **6M**

i. Solve the following simultaneous equations using Cramer's rule:

$4m + 6n = 54;\ 3m + 2n = 28$

ii. Solve the following quadratic equation by formula method:

$x^2 + 10x + 2 = 0$

iii. If two dice are rolled simultaneously, find the probability of the following events.

(1) The sum of the digits on the upper faces is at least 10.

(2) The sum of the digits on the upper faces is 33.

(3) The digit on the first die is greater than the digit on second die.

iv. The frequency distribution table shows the number of mango trees in a grove and their yield of mangoes. Find the median of data:

No. of Mangoes	No. of Trees
50-100	33
100-150	30
150-200	90
200-250	80
250-300	17

Q.4 **Solve the following questions (Any two)** **8M**

i. If m times the m^{th} term of an A.P. is equal to n times n^{th} term then show that the $(m + n)^{th}$ term of the A.P. is zero.

ii. Show the following data by a frequency polygon:

Electricity bill (`)	Families
200-400	240
400-600	300
600-800	450
800-1000	350
1000-1200	160

iii. Find m if $(m-12)x^2 + 2(m-12)x + 2 = 0$ has real and equal roots.

Q.5 **Solve the following questions. (Any one)** **3M**

i. Draw the graph of the equation 3x + 4y = 12. Find the area of the triangle formed by the line intersecting to X-axis and Y-axis.

ii. Observe the adjacent pie diagram. It shows the percentages of number of vehicles passing a signal in a town between 8 am and 10 am

(1) Find the central angle for each type of vehicle.

(2) If the number of two-wheelers is 1200, find the number of all vehicles.