

BIOLOGY
(SCIENCE PAPER – 3)

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Section A is compulsory. Attempt any four questions from Section B.

The intended marks for questions or parts of questions are given in brackets [].

SECTION A (40 Marks)

(Attempt all questions from this Section.)

Question 1

Select the correct answers to the questions from the given options.

[15]

(Do not copy the questions, write the correct answer only).

(i) Duplicated chromosomes are joined at a point termed:

- (a) Centrosome
- (b) Centromere
- (c) Centriole
- (d) Chromatid

(ii) The process of conversion of ADP to ATP during photosynthesis is called:

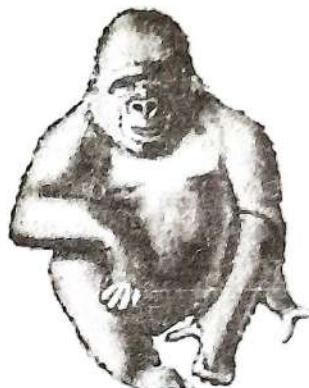
- (a) Photolysis
- (b) Phagocytosis
- (c) Photophosphorylation
- (d) Polymerisation

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- (iii) The process in which water is lost from the margins of strawberry leaves is:
- (a) Osmosis
 - (b) Imbibition
 - (c) Diffusion
 - (d) Guttation
- (iv) The hormone that affects urination is:
- (a) Adrenaline
 - (b) Vasopressin
 - (c) Oestrogen
 - (d) Thyroxine
- (v) Which one of the following helps in the opening of stomata:
- (a) Cobalt ions
 - (b) Potassium ions
 - (c) Magnesium ions
 - (d) Aluminium ions
- (vi) A zygote which has Y chromosome inherited from the father will develop into a:
- (a) Will depend on the chromosome inherited from the mother
 - (b) Girl
 - (c) Either boy or a girl
 - (d) Boy
- (vii) The ear ossicle that transports sound vibrations to the inner ear:
- (a) Stapes
 - (b) Malleus
 - (c) Incus
 - (d) Cochlea

- (viii) If a person has a heart attack, what must be done immediately?
- P. Loosen his/her clothing
Q. Make him/her lie down in an airy room
R. Rush him/her to the hospital
S. Engage him/her in a conversation
- (a) P and Q
(b) P and S
(c) R and S
(d) P, Q and R
- (ix) Adjusting the focal length of the eye lens to view objects at different distances is done by:
- (a) Cornea
(b) Iris
(c) Ciliary muscles
(d) Sclera
- (x) Four friends P, Q, R and S were discussing the examples of genetic disorders. The examples they quoted were as follows:
- P. Colour blindness and Malaria
Q. Albinism and Cholera
R. Haemophilia and Colour blindness
S. Haemophilia and Albinism
- Who gave the correct examples?
- (a) P and Q
(b) R and S
(c) P and R
(d) Q and S

- (xi) Osmosis takes place when there is:
- (a) A freely permeable membrane
 - (b) A cell wall
 - (c) A selectively permeable membrane
 - (d) An impermeable membrane
- (xii) A male gorilla has 48 chromosomes in each of its body cells. How many chromosomes will each of the sperms have?
- (a) 24
 - (b) 48
 - (c) 12
 - (d) 16



(xiii) **Assertion (A):** Sympathetic nervous system prepares the body for violent action against abnormal conditions.

Reason (R): Sympathetic nervous system accelerates heartbeat.

Which of the following is correct?

- (a) Both A and R are True
 - (b) A is True, R is False
 - (c) A is False but R is True
 - (d) Both A and R are False
- (xiv) Birth rate is the number of live births per thousand persons in:
- (a) 1 year
 - (b) 2 years
 - (c) 10 years
 - (d) 20 years

(xv) Industrial Melanism was observed in:

- (a) Mice
- (b) Peppered Moth
- (c) House Flies
- (d) Crow

Question 2

(i) Name the following:

[5]

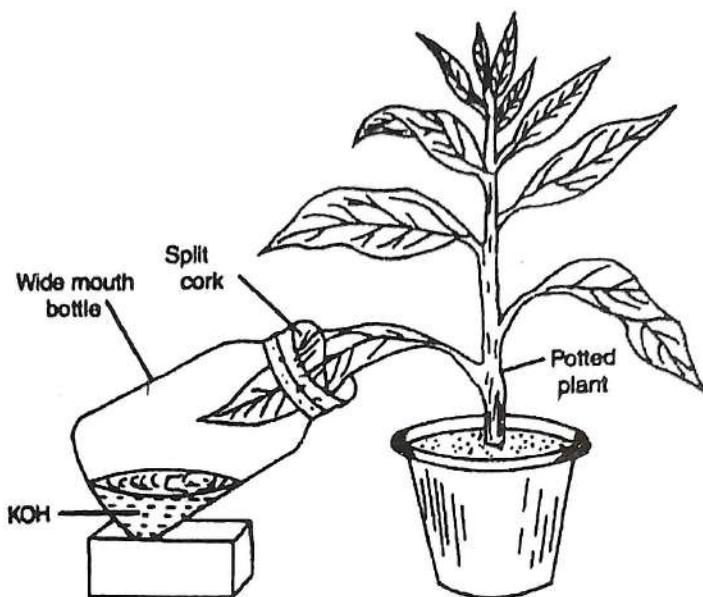
- (a) Unicellular outgrowths from the epidermis of roots.
- (b) A defect in our eyes, in which some parts of the object are in focus while the other parts are blurred.
- (c) The tropic movement of plant parts in response to chemicals.
- (d) The main nitrogenous waste formed in the body.
- (e) The process of attachment of fertilized ovum to the wall of uterus.

(ii) Arrange and rewrite the terms in each group in the correct order to be in a logical sequence beginning with the term that is underlined:

[5]

- (a) Australopithecus, Cro-Magnon, Homo erectus, Neanderthal man.
- (b) Pupil, Aqueous humour, Retina, Vitreous humour.
- (c) Effector, Receptor, Motor neuron, Sensory neuron.
- (d) Loop of Henle, Distal convoluted tubule, Bowman's Capsule, Proximal convoluted tubule.
- (e) Water vapour, Soil water, Leaves, Ascent of Sap

- (iii) Study the diagram given below and fill in the blanks with suitable words:



In order to prove that carbon dioxide is necessary for (a) _____, a potted plant is placed in dark for 48 hours to (b) _____ the leaves. A part of a leaf is inserted into a conical flask containing potassium hydroxide solution. This is to absorb (c) _____ from the flask. The plant is then placed in sunlight for a few hours. The experimental leaf is tested for starch. The part of the leaf that was inside the conical flask turns (d) _____, whereas the part of the leaf outside turns (e) _____ in colour.

- (iv) Choose the **odd** one out from the following terms and name the **category to which the others belong**:

- (a) Prothrombin, Thrombin, Fibrinogen, Albumin
- (b) Tonsils, Glomerulus, Spleen, Lymph nodes
- (c) Neutrophils, Basophils, Monocytes, Eosinophils
- (d) Leaves, Styrofoam, Grass, Cow Dung
- (e) Pulmonary artery, Renal artery, Coronary artery, Hepatic artery

- (v) Match the items given in **Column I** with most appropriate ones in **Column II** and rewrite the correct matching pairs: [5]

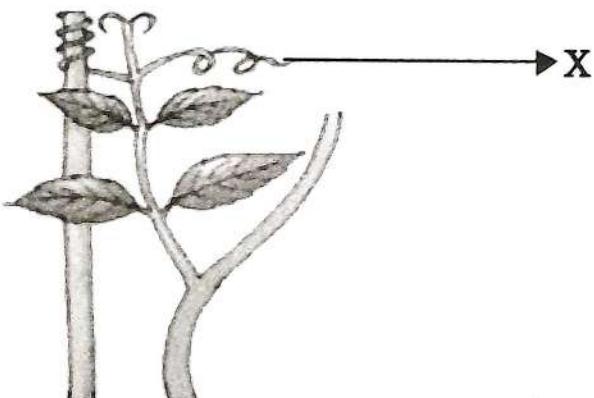
Column I	Column II
(a) Leydig Cells	1. Lack of thyroxine in children
(b) Stoma	2. 12 pairs
(c) Ova	3. Testosterone
(d) Cranial nerve	4. Diffusion of respiratory gases
(e) Cretinism	5. Haploid cells
	6. 31 Pairs
	7. Diploid cells

SECTION B (40 Marks)

(Attempt any four questions from this Section.)

✓ Question 3

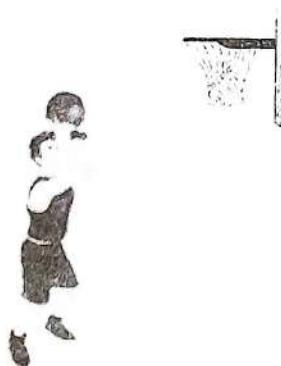
- (i) Expand the abbreviation-NADP. [1]
- (ii) Mention *two* adaptations in roots for absorption of water from the soil. [2]
- (iii) Differentiate between Afferent arteriole and Efferent arteriole (**diameter**). [2]
- (iv) Give *two* examples of water pollutants. [2]
- (v) Ali has some pea plants in his garden which need a support to grow as seen in the picture given below: [3]



- (a) Name the phenomenon depicted by the shoot in the given figure.
- (b) Define the above phenomenon.
- (c) Write the name of the part marked X.

Question 4

- (i) Give the biological term for the surgical method of contraception in human females. [1]
- (ii) State *two* harmful effects of acid rain on the environment. [2]
- (iii) Mention *two* advantages of Transpiration. [2]
- (iv) Write *any two* objectives of Swachh Bharat Abhiyan. [2]
- (v) Mohan is fond of playing basketball. His concentration is on shooting the ball into the opponent's basket as given in the picture. [3]

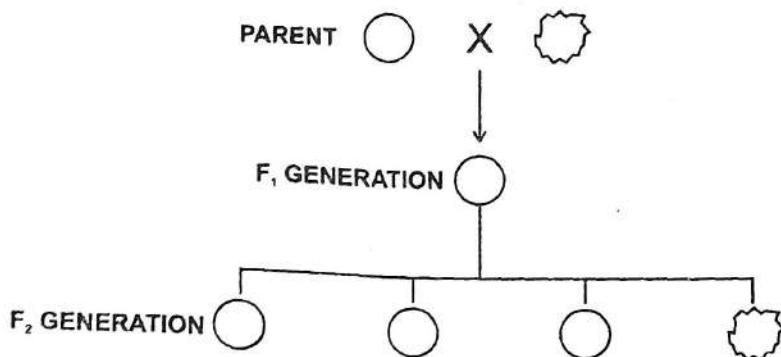


- (a) Which part of the brain helps Mohan to concentrate in putting the ball into the basket?
- (b) Name the sense organ that helps to gauge the distance between the ball and the basket.
- (c) Name the part of the brain that co-ordinates all the voluntary muscles of his body.

Question 5

- (i) Name the type of nerve which has the fibres of both sensory and motor neurons. [1]
- (ii) Differentiate between Australopithecus and Modern man based on body hair. [2]
- (iii) "Birth rate in India is very high." Mention *two* reasons in support of the statement. [2]
- (iv) Give the exact location of:
- (a) Pericardium [2]
- (b) Bicuspid valve

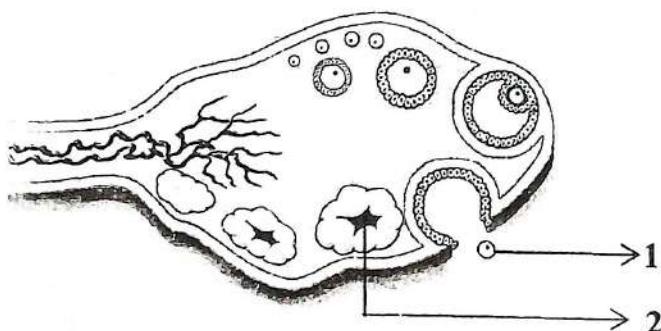
Given below is a schematic representation of the inheritance of the shape of seeds of garden pea. Answer the questions that follow:



- (a) Which is the dominant and recessive allele of the trait?
- (b) What does the ratio 3 : 1 in the F₂ generation represent?
- (c) State Mendel's Law of Dominance.

Question 6

- (i) Define the term-Diapedesis. [1]
- (ii) Distinguish between Diabetes mellitus and Diabetes insipidus (**endocrine gland concerned**). [2]
- (iii) Carbon monoxide is dangerous when inhaled in excess. Comment on the statement. [2]
- (iv) The diagram given below shows a section of the human ovary. [2]



- (a) Name the process for the release of the part labelled 1.
- (b) Write the name of the structure marked 2.
- (v) Draw a neat, labelled diagram of a chloroplast. [3]

Question 7

- (i) Define the term hormone. [1]
- (ii) Which parts of the ear are responsible for: [2]
- (a) Static equilibrium?
- (b) Dynamic equilibrium?
- (iii) Mention *two* structural differences between an artery and a vein. [2]
- (iv) Write *any two* limitations of using a Ganong's Potometer to demonstrate the uptake of water. [2]
- (v) A teacher drew the diagram of heart on the blackboard and told the students to copy it in their notebooks. Mahesh couldn't see the diagram clearly as it appeared blurred to him. [3]
- (a) Name the defect of the eye Mahesh is suffering from.
- (b) Where is the image formed in this defect?
- (c) Mahesh consults an eye doctor and is prescribed suitable lenses to correct the defect. Which type of lens do his spectacles have?

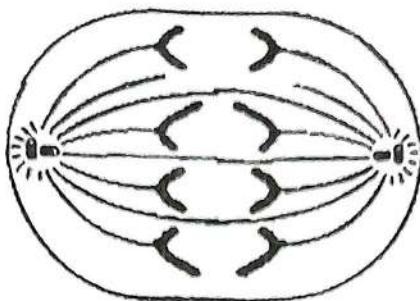
Question 8

- (i) Define the term ultrafiltration. [1]
- (ii) Name the mineral elements required for: [2]
- (a) Clotting of blood
- (b) Synthesis of thyroxine
- (iii) Mention *two* harmful effects of noise pollution. [2]
- (iv) Why are RBCs efficient in their functions though they lack nucleus and mitochondria? [2]

(y)

The diagram given below represents a stage in mitosis.

[3]



- (a) Identify the stage given above.
- (b) Give *one* reason to support your answer in (a).
- (c) Mention the number of chromosomes given in the diagram.

CHEMISTRY
(SCIENCE PAPER – 2)

Maximum Marks: 80

Time allowed: Two hours

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Section A is compulsory. Attempt any four questions from Section B.

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SECTION A (40 Marks)

(Attempt all questions from this Section.)

Question 1

Choose the correct answers to the questions from the given options.

[15]

(Do not copy the questions, write the correct answers only.)

(i) Unsaturated hydrocarbons undergo:

- (a) Addition reaction
- (b) Substitution reaction
- (c) Oxidation reaction
- (d) Redox reaction

(ii) In the 2nd period Neon has maximum Ionization Potential because:

- (a) It has unstable electronic configuration.
- (b) It easily accepts electrons.
- (c) It easily loses electrons.
- (d) The outer most shell is completely filled.

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- (iii) Copper, Zinc and Tin are the metals alloyed to form:
- (a) Duralumin
 - (b) Brass
 - (c) Bronze
 - (d) Solder
- (iv) The metal hydroxide which reacts with both acids and alkalis to form salt and water is:
- (a) Calcium hydroxide
 - (b) Magnesium hydroxide
 - (c) Aluminium hydroxide
 - (d) Ferric hydroxide
- (v) Reaction of an alcohol with a carboxylic acid in the presence of concentrated H_2SO_4 is termed as:
- (a) Halogenation
 - (b) Esterification
 - (c) Hydrogenation
 - (d) Dehydrohalogenation
- (vi) Conversion of Ethanol to Ethene by the action of concentrated sulphuric acid involves:
- (a) Dehydration
 - (b) Dehydrogenation
 - (c) Dehydrohalogenation
 - (d) Hydrolysis
- (vii) The oxidizing agent in the equation $\text{S} + 2\text{H}_2\text{SO}_4 \rightarrow 3\text{SO}_2 + 2\text{H}_2\text{O}$ is:
- (a) Sulphur
 - (b) Sulphuric acid
 - (c) Sulphur dioxide
 - (d) Water

(viii) Electron Affinity is maximum in:

- (a) Mg
- (b) Ar
- (c) Li
- (d) Br

(ix) The compound that is **not** a constituent of the electrolytic mixture used in the Hall-Heroult's process is:

- (a) Al_2O_3
- (b) NaAlO_2
- (c) Na_3AlF_6
- (d) CaF_2

(x) On passing ammonia gas over heated copper oxide for some time, a reddish-brown residue is left behind. What property of ammonia is demonstrated here?

- (a) Basic property
- (b) Oxidising property
- (c) Reducing property
- (d) Acidic property

(xi) Rotten egg smell is due to the liberation of:

- (a) HCl gas
- (b) H_2S gas
- (c) Cl_2 gas
- (d) SO_2 gas

(xii) Ammonia gas is collected by downward displacement of air since ammonia is:

- (a) very slightly soluble in water.
- (b) heavier than air.
- (c) lighter than air.
- (d) insoluble in water.

(xiii) Which of the following would occupy 22.4 litres at S.T.P.?

- 1. 32g of oxygen gas
 - 2. 2 moles of hydrogen gas
 - 3. 6.022×10^{23} molecules of ammonia
- (a) 1 & 2
 - (b) 1 & 3
 - (c) 2 & 3
 - (d) 1, 2 & 3

[Atomic weights: O = 16, H = 1, N = 14]

(xiv) In the molecule of water, oxygen atom has:

- (a) One shared pair of electrons.
- (b) Three shared pairs of electrons.
- (c) Two lone pairs of electrons.
- (d) One lone pair of electrons.

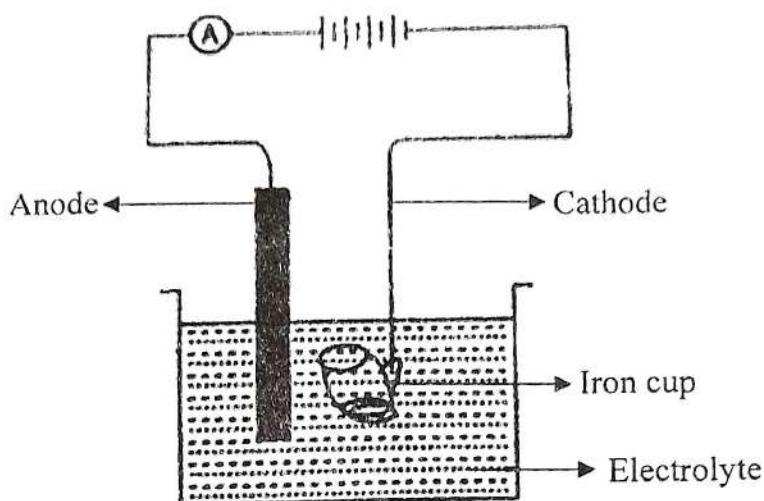
(xv) A mineral from which the metal can be extracted economically and conveniently is known as:

- (a) Matrix
- (b) Ore
- (c) Flux
- (d) Alloy

Question 2

(i) The following sketch represents the electroplating of an Iron cup with Nickel metal. [5]

Study the diagram and answer the following questions:



(a) During electroplating the iron cup is placed at the cathode. Why?

(b) Name the ion that must be present in the electrolyte.

(c) State one condition that is necessary to ensure that the deposit is smooth, firm and even.

(d) Write the reaction taking place at the cathode.

(e) What change would you observe at the anode?

(ii) Match the *Column A* with *Column B*:

[5]

Column A

Column B

- (a) Water
- (b) Alkali metal
- (c) Halogen
- (d) Calcium oxide
- (e) Weak acid

- 1. Lithium
- 2. Iodine
- 3. Covalent compound
- 4. Acetic acid
- 5. Ionic compound
- 6. Sulphuric acid

(iii) Complete the following sentences by choosing the correct answer from the brackets: [5]

- (a) The salt that can be prepared by Direct Combination is _____.
[*FeCl₃* / *FeCl₂*]
- (b) The metallic oxide which can be reduced by using common reducing agents is _____. [*Fe₂O₃* / *Al₂O₃*]
- (c) The metal nitrate which on thermal decomposition forms a black residue is _____. [*zinc nitrate* / *copper nitrate*]
- (d) During the electrolysis of copper sulphate solution, if _____ is used as electrodes, the colour of the electrolyte does not fade. [*copper* / *platinum*]
- (e) The process of heating the concentrated ore in a limited supply or absence of air is _____. [*roasting* / *calcination*]

(iv) State the **terms** for the following:

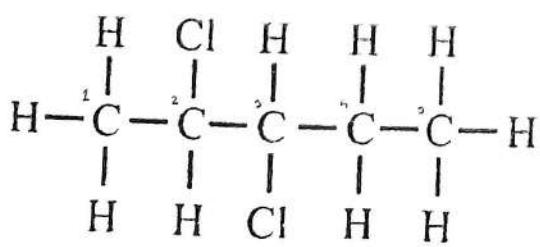
[5]

- (a) The group obtained by removing one hydrogen atom from the parent alkane.
- (b) Two metal plates or wires through which the current enters and leaves the electrolytic cell.
- (c) The amount of substance which contains the same number of units as the number of atoms in carbon-12.
- (d) The tendency of an atom to pull a shared pair of electrons towards itself in a compound.
- (e) The formula which represents the simplest ratio between the atoms of elements present in a compound.

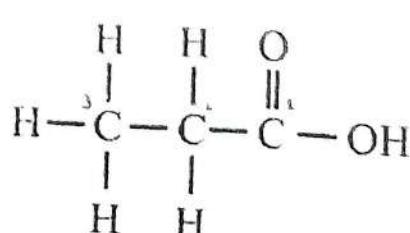
(v) (a) Give the IUPAC names of the organic compounds represented by the structural formulae given below:

[5]

1.



2.



(b) Draw the *structural diagram* for the following organic compounds:

1. 3-methyl pentane
2. propyne
3. methanal

SECTION B (40 Marks)

(Attempt any four questions from this Section.)

Question 3

(i) Rewrite the following statements by adding the correct word as shown in the example: [2]

Example:

Given Statement: Ammonia changes moist red litmus to blue.

Correct Statement: Aqueous ammonia changes moist red litmus to blue.

- (a) Sulphuric acid acts as a dehydrating agent.
 - (b) Ammonia reacts with chlorine to give ammonium chloride and nitrogen.
- (ii) Identify **only** the **anion** present in the following compound: [2]
- (a) The compound on heating produces a colourless, odourless gas which turns lime water milky and has no effect on acidified potassium dichromate solution.
 - (b) The solution of the compound which on treating with concentrated sulphuric acid and freshly prepared ferrous sulphate solution produces a brown ring.
- (iii) Mohan has three solutions P, Q and R having a pH of 13, 5 and 2 respectively. [3]
Which of the above solutions P, Q or R:
 - (a) will react with Magnesium to liberate hydrogen gas?
 - (b) will liberate ammonia gas when it reacts with ammonium chloride?
 - (c) will contain molecules as well as ions?

- (iv) The following table is related to an Industrial process of an acid. [3]

Name of the process	Reactant	Catalyst	Final product
(a)	SO ₂ + O ₂	(b)	(c)

Identify (a), (b) and (c).

Question 4

[2]

- (i) Define the following terms:

(a) Molar volume

(b) Normal salt

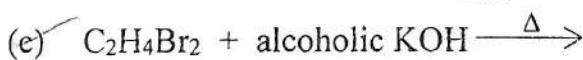
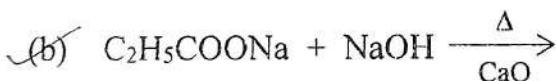
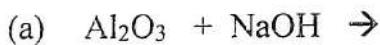
- (ii) Draw the *electron dot* structure of:

(a) Methane molecule

(b) Nitrogen molecule

[Atomic number: N = 7, C = 6, H = 1]

- (iii) Complete and balance the following equations: [3]



- (iv) Choose the organic compound from the list given below to answer the following questions: [3]

Ethene	Ethanoic acid	Ethanol	Methanal
--------	---------------	---------	----------

- (a) The compound which does **not** have a double bond in its structure.
- (b) The compound which in its pure form turns into an ice like solid on cooling.
- (c) The compound which is used for artificial ripening of fruits.

Question 5

(i) Name the **main metal** used in making of the alloys given below: [2]

(a) Duralumin

/

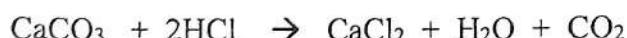
(b) Stainless steel

(ii) Differentiate between the following pairs based on the criteria given: [2]

(a) Sulphuric acid and Nitric acid (*using barium chloride solution*)

(b) Unsaturated and Saturated hydrocarbons (*type of bond present*)

(iii) Calcium carbonate reacts with dilute hydrochloric acid as given below: [3]



(a) What is the mass of 5 moles of calcium carbonate? (*Relative molecular mass of calcium carbonate is 100*)

(b) How many moles of HCl will react with 5 moles of calcium carbonate?

(c) What is the volume of carbon dioxide liberated at S.T.P. at the same time?

(iv) Identify the *gas evolved* in each of the following reactions: [3]

(a) Methane undergoes complete combustion.

(b) Copper carbonate is heated.

(c) MnO_2 reacts with concentrated HCl.

/

Question 6

(i) $\text{X} - \text{HCl} \rightleftharpoons \text{H}^{1+} + \text{Cl}^-$ (*in solution state*) [2]

$\text{Y} - \text{PbBr}_2 \rightleftharpoons \text{Pb}^{2+} + 2\text{Br}^{1-}$ (*in molten state*)

From the above reactions X or Y, identify the reaction which exhibits:

(a) electrolytic dissociation

(b) ionization

(ii) Give reasons for the following: [2]

(a) Inert gases do not form ions.

(b) Covalent compounds have a low melting and boiling point.

[3]

(iii) Arrange the following as per the instructions given in the brackets:

- (a) Carbon, Fluorine, Beryllium (*decreasing order of atomic size*)
- (b) Sulphuric acid, Phosphoric acid, Acetic acid (*increasing order of number of replaceable H atoms per molecule*)
- (c) Potassium, Lithium, Sodium (*increasing order of ionization potential*)

[3]

(iv) Identify the following:

- (a) An element in period 1 which can be placed in both group 1 and group 17 of the Periodic Table.
- (b) The element having electronic configuration 2, 8, 6.
- (c) The most electronegative element of period 3.

Question 7

[2]

(i) Rita was given an unknown salt for identification. She prepared a solution of the salt and divided it into two parts.

- To the first part of the salt solution, she added a few drops of ammonium hydroxide and obtained a reddish-brown precipitate.
- To the second part of the salt solution, she added a few drops of silver nitrate solution and obtained a white precipitate.

Name:

- (a) the cation present and
- (b) the anion present in the salt given for identification.

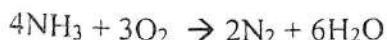
(ii) Fill in the blanks by choosing the correct answer from the bracket:

[2]

- (a) Carbon tetrachloride is a _____ [*polar / non-polar*] covalent molecule.
- (b) During electrolysis of acidulated water, the gas liberated at the anode is _____ [*oxygen / hydrogen*].

(iii) Ammonia burns in oxygen as shown below.

[3]



If 240 cc of ammonia is burnt in 300 cc of oxygen, find out the composition of the resultant gaseous mixture at room temperature.

(iv) The following table shows the electronic configuration of the atoms A, B, C and D.

[3]

Element	A	B	C	D
Electronic configuration	2, 8, 8, 2	2, 6	2, 8, 7	2, 4

(a) Write the formula of the compound formed between:

1. A and B
2. D and C

(b) Which of the above elements will exhibit catenation?

Question 8

(i) Choose the correct answer from the list given below:

zinc blende, C_2H_2 , calamine, CH, haematite

[2]

(a) The ore which can be concentrated by magnetic separation.

(b) Empirical formula of Ethyne.

(ii) Give balanced equation for the following reactions:

[2]

(a) Copper reacts with concentrated Nitric acid.

(b) Aluminium nitride is treated with warm water.

(iii) Match the salts underlined in Column A with the most suitable method of preparation given in Column B.

[3]

Column A

Column B

- (a) ZnCl_2 from Zn
(b) KNO_3 from KOH
(c) CaCO_3 from CaCl_2

1. Precipitation
2. Direct combination
3. Displacement reaction
4. Neutralization

[3]

- (iv) Hydrogen chloride gas is prepared in the laboratory by the action of concentrated sulphuric acid on sodium chloride.
- (a) Give balanced chemical equation for the above reaction.
- (b) State the method of collection of the gas formed above.
- (c) What is the property of sulphuric acid that makes it a suitable reagent for the reaction?

COMPUTER APPLICATIONS

Maximum Marks: 100

Time allowed: Two hours

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SECTION A (40 Marks)

(Attempt all questions from this Section.)

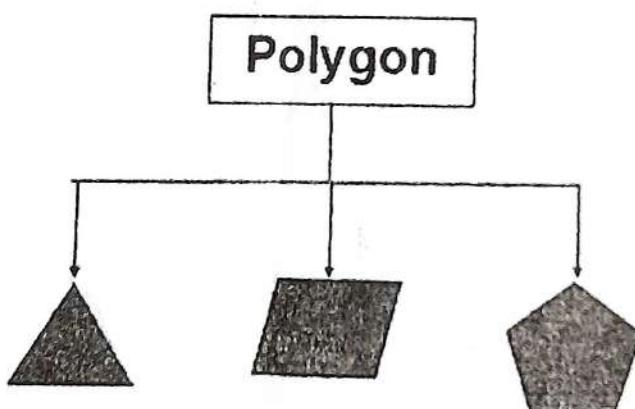
Question 1

[20]

Choose the correct answers to the questions from the given options.

(Do not copy the questions, write the correct answers only.)

(i)



Consider the above picture and choose the correct statement from the following:

- (a) Polygon is the object and the pictures are classes
- (b) Both polygon and the pictures are classes
- (c) Polygon is the class and the pictures are objects
- (d) Both polygon and the pictures are objects

This paper consists of 11 printed pages and 1 blank page.

- (ii) int x = 98; char ch = (char)x; what is the value in ch?
(a) b
(b) A
(c) B
(d) 97
- (iii) The output of the statement "**CONCENTRATION**".**indexOf('T')** is:
(a) 9
(b) 7
(c) 6
(d) (-1)
- (iv) The access specifier that gives least accessibility is:
(a) package
(b) public
(c) protected
(d) private
- (v) The output of the statement "**talent**".**compareTo("genius")** is:
(a) 11
(b) -11
(c) 0
(d) 13
- (vi) Which of the following is an escape sequence character in Java?
(a) /n
(b) \t
(c) /t
(d) //n

- (vii) if (a>b&&b>c) then largest number is:
- (a) b
 - (b) c
 - (c) a
 - (d) wrong expression
- (viii) What is the output of `Math.ceil(5.4)+Math.ceil(4.5)?`
- (a) 10.0
 - (b) 11.0
 - (c) 12.0
 - (d) 9.0
- (ix) What is the method to check whether a character is a letter or digit?
- (a) `isDigit(char)`
 - (b) `isLetterOrDigit()`
 - (c) `isLetterOrDigit(char)`
 - (d) `isLETTERorDIGIT(char)`
- (x) The extension of a Java source code file is:
- (a) exe
 - (b) obj
 - (c) jvm
 - (d) java
- (xi) The number of bytes occupied by a character array of four rows and three columns are:
- (a) 12
 - (b) 24
 - (c) 96
 - (d) 48

(xii) Which of the following data type cannot be used with switch case construct?

- (a) int
- (b) char
- (c) String
- (d) double

(xiii) Which of the following are entry controlled loops?

- 1. for
 - 2. while
 - 3. do..whiie
 - 4. switch
- (a) only 1
 - (b) 1 and 2
 - (c) 1 and 3
 - (d) 3 and 4

(xiv) Method which reverses a given number is:

- (a) Impure method
- (b) Pure method
- (c) Constructor
- (d) Destructor

(xv) If the name of the class is “Yellow”, what can be the possible name for its constructors?

- (a) yellow
- (b) YELLOW
- (c) Yell
- (d) Yellow

(xvi) Invoking a method by passing the objects of a class is termed as:

- (a) Call by reference
- (b) Call by value
- (c) Call by method
- (d) Call by constructor

(xvii) The correct statement to create an object named mango of class fruit:

- (a) Fruit Mango= new fruit();
- (b) fruit mango = new fruit();
- (c) Mango fruit=new Mango();
- (d) fruit mango= new mango();

(xviii) **Assertion (A):** Static method can access static and instance variables.

Reason (R): Static variable can be accessed only by static method.

- (a) Assertion and Reason both are correct.
- (b) Assertion is true and Reason is false.
- (c) Assertion is false and Reason is true.
- (d) Assertion and Reason both are false.

(xix) What is the output of the Java code given below?

```
String color [ ] = {"Blue", "Red", "Violet"};
```

```
System.out.println(color[2].length());
```

- (a) 6
- (b) 5
- (c) 3
- (d) 2

- (xx) Which of the following mathematical methods returns only an integer?
- (a) Math.ceil(n)
 - (b) Math.sqrt(n)
 - (c) Math.floor(n)
 - (d) Math.round(n)

Question 2

- (i) Write Java expression for:

$$\frac{|a + b|}{\sqrt{a^2 + b^2}}$$

- (ii) Evaluate the expression when x is 4:

$x += x++ * ++x \% 2;$

- (iii) Rewrite the following *do while* program segment using for:

$x = 10; y = 20;$

do

{

$x++;$

$y++;$

} while ($x \leq 20$);

System.out.println($x * y$);

- (iv) Give the output of the following program segment. How many times is the loop executed?

for($x=10; x > 20; x++$)

System.out.println(x);

System.out.println($x * 2$);

- (v) String s1 = "45.50"; String s2 = "54.50";
 double d1=Double.parseDouble(s1);
 double d2=Double.parseDouble(s2);
 int x= (int)(d1+d2); [2]
- What is value of x?
- (vi) Consider the following two-dimensional array and answer the questions given below: [2]
- int x[][] = {{4,3,2}, {7,8,2}, {8, 3,10}, {1, 2, 9}};
- (a) What is the order of the array?
 (b) What is the value of x[0][0]+x[2][2]?
- (vii) Differentiate between boxing and unboxing. [2]
- (viii) The following code to compare two strings is compiled, the following syntax error was displayed – incompatible types – int cannot be converted to boolean. Identify the statement which has the error and write the correct statement. Give the output of the program segment. [2]
- void calculate()
- {
- String a = "KING", b = "KINGDOM";
- boolean x = a.compareTo(b);
- System.out.println(x);
- }
- (ix) Consider the given program and answer the questions given below: [2]
- class temp
- {
- int a;
- temp()

```

{
    a=10;

}

temp(int z)

{
    a=z;

}

void print()

{
    System.out.println(a);
}

void main()

{
    temp t = new temp();

    temp x = new temp(30);

    t.print();

    x.print();
}
}

```

(a) What concept of OOPs is depicted in the above program with two constructors?

(b) What is the output of the method main()?

(x) Primitive data types are built in data types which are a part of the wrapper classes. These wrapper classes are encapsulated in the java.lang package. Non primitive datatypes like Scanner class are a part of the utility package for which an object needs to be created.

(a) To which package the Character and Boolean classes belong?

(b) Write the statement to access the Scanner class in the program.

SECTION B (60 Marks)

(Answer any four questions from this Section.)

The answers in this section should consist of the programs in either BlueJ environment or any program environment with Java as the base.

Each program should be written using variable description / mnemonic codes so that the logic of the program is clearly depicted.

Flowcharts and algorithms are not required.

Question 3

[15]

DTDC a courier company charges for the courier based on the weight of the parcel. Define a class with the following specifications:

class name: courier

Member variables: name – name of the customer

 ✓weight – weight of the parcel in kilograms

 ✓address – address of the recipient

 ✓bill – amount to be paid

 ✓type – ‘D’- domestic, ‘I’- international

Member methods:

void accept () – to accept the details using the methods of the *Scanner* class only.

void calculate () – to calculate the bill as per the following criteria:

Weight in Kgs	Rate per Kg
---------------	-------------

First 5 Kgs	Rs.800
-------------	--------

Next 5 Kgs	Rs.700
------------	--------

Above 10 Kgs	Rs.500
--------------	--------

An additional amount of Rs.1500 is charged if the type of the courier is I (International)

void print () – To print the details

void main () – to create an object of the class and invoke the methods

Question 4

Define a class to overload the method perform as follows:

double perform (double r, double h)

to calculate and return the value of
Curved surface area of cone

$$CSA = \pi r l \quad l = \sqrt{r^2 + h^2}$$

void perform (int r, int c)

Use NESTED FOR LOOP to generate the
following format

r = 4, c = 5 output - 1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

void perform (int m, int n, char ch)

to print the quotient of the division of m and
n if ch is Q else print the remainder of the
division of m and n if ch is R

Question 5

[15]

Define a class to accept a number from user and check if it is an EvenPal number or not.
(The number is said to be EvenPal number when number is palindrome number (a number
is palindrome if it is equal to its reverse) and sum of its digits is an even number.)

Example: 121 – is a palindrome number

Sum of the digits – $1+2+1 = 4$ which is an even number

Question 6

[15]

Define a class to accept values into an integer array of order 4×4 and check whether it is
a DIAGONAL array or not. An array is DIAGONAL if the sum of the left diagonal
elements equals the sum of the right diagonal elements. Print the appropriate message.

Example:

3 4 2 5

Sum of the left diagonal elements =

2 5 2 3

$3 + 5 + 2 + 1 = 11$

5 3 2 7

Sum of the right diagonal elements =

1 3 7 1

$5 + 2 + 3 + 1 = 11$

Question 7

[15]

Define a class pin code and store the given pin codes in a single dimensional array. Sort these pin codes in ascending order using the Selection Sort technique only. Display the sorted array.

110061, 110001, 110029, 110023, 110055, 110006, 110019, 110033

Question 8

[15]

Define a class to accept the gmail id and check for its validity.

A gmail id is valid only if it has:

- @
- . (dot)
- gmail
- com

Example: icse2024@gmail.com is a valid gmail id.

ENGLISH LANGUAGE

(ENGLISH PAPER – 1)

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt all five questions.

The intended marks for questions or parts of questions are given in brackets [].

You are advised to spend not more than 30 minutes in answering Question 1 and 20 minutes in answering Question 2.

Question 1

(Do not spend more than 30 minutes on this question.)

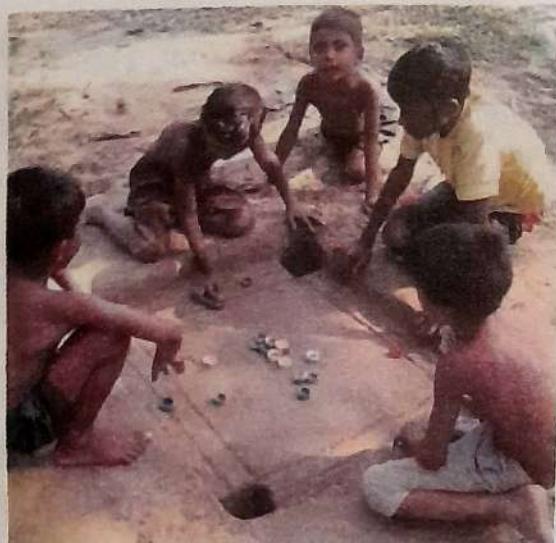
[20]

Write a composition (300 - 350 words) on **any one** of the following:

- (i) Write an original short story entitled 'A Strange Visitor'.
- (ii) Narrate an incident from your experience in which your parents had entrusted you with a difficult task. Give details of the task, how you carried it out and your feelings at the end.
- (iii) Describe how you spend your time on a holiday afternoon. Why do you think it is necessary to have these times of quietness and solitude?
- (iv) Express your views either for **or** against the statement 'Junk food should be banned'.

This paper consists of 8 printed pages.

- (v) Study the picture given below. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the picture, or you may take suggestions from it; however, there must be a clear connection between the picture and your composition.



Question 2

[10]

(Do not spend more than 20 minutes on this question.)

Select **any one** of the following:

- (i) Your friend was absent from school on a day when an unfortunate incident took place for which you were blamed. Write a letter to your friend giving details about the incident, your role in it and how the matter was finally resolved.
- (ii) You wish to stage a play to create awareness about the importance of saving electricity. Write a letter to the Manager of a nearby shopping mall/supermarket requesting permission to use the space in front of the shopping mall/supermarket to stage the play. Give him/her details about your requirements and state why the play will be beneficial to the shoppers.

Question 3

- (i) Your school is hosting an Inter School Dance Competition. Write a notice to be put up on your school notice board informing the students about the event.
- (ii) Write an email to the Principal of a neighbouring school to request him/her to send their dance teacher to act as a judge for the competition.

[5]

[5]

Question 4

Read the following passage carefully and answer the questions that follow:

Ashamanja Babu lived in a small flat in Bhowanipore. A clerk in the registry department of Lajpat Rai Post Office, Ashamanja Babu was fortunate as he could walk to his office in seven minutes flat without having to fight his way into the buses and trains of Calcutta. He lived a rather carefree life as he was not the kind of person to sit and brood about what might have been had Fate been kinder to him. On the whole, he was quite content with his lot. Two Hindi films and fish twice a week – these were enough to keep him happy. The only thing that *perturbed* him at times was his lack of companionship. A bachelor with few friends and relatives, he often wished he had a dog to keep him company. It need not be a huge Alsatian like the one owned by the Talukdars, who lived two houses down the lane; it could be any ordinary little dog which would follow him around morning and evening, wag its tail when he came home from work and obey his orders faithfully. Ashamanja Babu's secret desires were that he would speak to his dog in English. 'Stand up', 'Sit down', 'Shake hands' – how nice it would be if his dog obeyed such commands! That would make him really happy.

10

On a cloudy day marked by a steady drizzle, Ashamanja Babu went to the market in Hashimara to buy some oranges. At one end of the market, beside a *stunted* kul tree, sat a man. As their eyes met, the man smiled. Was he a beggar? His clothes made him look like one. Ashamanja Babu noticed at least five sewn-on patches on his trousers and jacket. But the man didn't have a begging bowl. Instead, by his side was a shoe-box with a little pup sticking its head out of it.

20

'Good morning!' said the man in English. Ashamanja Babu was obliged to return the greeting.

'Buy dog? Dog buy? Very good dog.' The man had taken the pup out of the box and had put it down on the ground. 'Very cheap. Very good. Happy dog.'

The pup shook the raindrops off its coat, looked at Ashamanja Babu and wagged its minuscule two-inch tail. Ashamanja Babu moved closer to the pup,

crouched on the ground and stretched out his hand. The pup gave his ring finger a lick with its pink tongue. Nice, friendly dog.

30

'How much? What price?'

'Ten rupees.'

A little haggling and the price came down to seven rupees. Ashamanja Babu paid the money, put the pup back in the shoe-box, closed the lid to save it from the drizzle, and turned homewards, forgetting all about the oranges.

— *Ashamanja Babu's Dog* by Satyajit Ray

- (i) For each word given below choose the correct meaning (as used in the passage) from the options provided: [2]

1. perturbed (*line 8*)

- (a) frightened
- (b) unsettled
- (c) confused
- (d) mocked

2. stunted (*line 19*)

- (a) prevented from growing
- (b) prepared for tricks
- (c) prevented from taking action
- (d) allowed to do stunts

- (ii) Which word in the passage means the opposite of the word 'expensive'? [1]

- (a) carefree
- (b) ordinary
- (c) cheap
- (d) haggling

- (iii) Answer the following questions briefly in your own words:
- (a) What kept Ashamanja Babu happy? [2]
- (b) What does this tell you about him? [2]
- (c) What is that one other thing he needed to complete his happiness? [1]
- (d) Why did Ashamanja Babu think the man was a beggar? [2]
- (e) Why did Ashamanja Babu forget about his oranges? [2]
- (iv) In not more than 50 words, narrate the series of events from the time the puppy was taken out of the box till it was paid for. [8]

Question 5

- (i) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage but write in correct serial order the word or phrase appropriate to the blank space. [4]

Example:

Next day my uncle (0) _____ (spend) a lot of time.

Answer: (0) spent

He (1) _____ (select) clothes for me, and my aunt (2) _____ (give) my face a scrub and (3) _____ (groom) me. My uncle (4) _____ (follow) me about (5) _____ (utter) several pieces of advice before (6) _____ (let) me out. 'You must never scowl even if the sun (7) _____ (hit) you in the eyes. You must try (8) _____ (look) pleasant.'

- (ii) Fill in the blanks with appropriate words. [4]

- (a) There's a black cat sitting _____ the wall.
- (b) The horse jumped _____ the hedge.
- (c) Mother goes _____ the market every day.
- (d) Several people have climbed Mount Everest _____ recent years.

- (e) I often go to school _____ my friend.
- (f) I have left my keys _____ home.
- (g) Instead of talking, prove your worth _____ doing something.
- (h) I have not slept _____ yesterday.
- (iii) Choose the correct option to make one complete sentence **without using and, but or so.** [4]
1. The magician took pity on the mouse. He turned it into a cat.
 - (a) Showing pity on the mouse he turned it into a cat.
 - (b) Taking pity on the mouse he turned it into a cat.
 - (c) The magician turned the mouse into a cat by taking pity.
 - (d) Taking pity on the mouse the magician turned it into a cat.
 2. This work must be completed. There is a deadline.
 - (a) Since this work must be completed, there is a deadline.
 - (b) This work must be completed because there is a deadline.
 - (c) This work must be completed though there is a deadline.
 - (d) This work must be completed when there is a deadline.
 3. He fled somewhere. His pursuers could not follow him.
 - (a) He fled where his pursuers could not follow him.
 - (b) He pursued somewhere his followers could not flee.
 - (c) He fled somewhere when his pursuers could not follow him.
 - (d) He fled where his pursuers cannot follow him.
 4. He began late. He finished first.
 - (a) He finished first and began late.
 - (b) He began first but finished late.
 - (c) Though he finished late, he began first.
 - (d) Though he began late, he finished first.

(iv) Choose the correct option and rewrite the sentence according to the instruction given after each. [8]

1. Arun and Nikhil had climbed the mountain.

(Add a question tag)

- (a) Arun and Nikhil had climbed the mountain, didn't they?
- (b) Arun and Nikhil had climbed the mountain, had they?
- (c) Arun and Nikhil had climbed the mountain, hadn't they?
- (d) Arun and Nikhil had climbed the mountain, did they?

2. The children have broken the window pane.

(Begin: The window pane.....)

- (a) The window pane had been broken by the children.
- (b) The window pane has been broken by the children.
- (c) The window pane has not been broken by the children.
- (d) The window pane had not been broken by the children.

3. The apples are so cheap that they cannot be good.

(Use: 'too')

- (a) The apples are too cheap and good.
- (b) The apples are too cheap as well as good.
- (c) The apples are too good to be cheap.
- (d) The apples are too cheap to be good.

4. She is very clever and beautiful.

(Use: 'not only')

- (a) Not only is she very clever but also beautiful.
- (b) Not only was she beautiful and she was also clever.
- (c) Not only is she clever she was also very beautiful.
- (d) Not only was she very beautiful but is also clever.

5. I prefer a simple vanilla ice cream to fancy desserts.

(Begin: *I would rather.....*)

- (a) I would rather have a simple vanilla ice cream to fancy desserts.
- (b) I would rather have a simple vanilla ice cream than fancy desserts.
- (c) I would rather prefer a simple vanilla ice cream than fancy desserts.
- (d) I would rather have a vanilla ice cream than a fancy dessert.

6. He asked, "When do you intend to make the payment?"

(Begin: *He asked*)

- (a) He asked when he did intend to make the payment.
- (b) He asked when she is intending to make the payment.
- (c) He asked when I intended to make the payment.
- (d) He asked when they are intending to make the payment.

7. If the rain does not stop, Mariam will not be able to do the laundry.

(Begin: *Unless....*)

- (a) Unless the rain does not stop, Mariam will not be able to do the laundry.
- (b) Unless Mariam does the laundry, the rain will not stop.
- (c) Unless the rain stop, Mariam will not be able to do the laundry.
- (d) Unless the rain stops, Mariam will not be able to do the laundry.

8. This is the best movie I have ever seen.

(Begin: *Never....*)

- (a) Never had I seen a good movie than this.
- (b) Never I have seen a better movie than this.
- (c) Never have I seen a better movie than this.
- (d) I have never seen a good movie as this.

LITERATURE IN ENGLISH
(ENGLISH PAPER – 2)

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

The paper has four Sections.

Section A is compulsory – All questions in Section A must be answered.

You must attempt one question from each of the Sections B, C and D and one other question from any Section of your choice.

The intended marks for questions or parts of questions are given in brackets [].

SECTION A

(Attempt all questions from this Section.)

Question 1

Choose the correct answers to the questions from the given options.

[16]

(Do not copy the questions, write ONLY the correct answers.)

- (i) Where does Portia say that she and Nerissa will stay until their husbands' return?
- (a) In Venice
 - (b) At Belmont
 - (c) At Padua
 - (d) In a monastery
- (ii) What aspect of Shylock's nature is revealed in his words, "To bait fish withal: if it will feed nothing else, it will feed any revenge."?
- (a) Pride
 - (b) Envy
 - (c) Vengefulness
 - (d) Greed

This paper consists of 8 printed pages.

- (iii) Gratiano exclaims, "We are the Jasons, we have won the fleece." In this context, the word 'fleece' refers to _____.
- (a) Portia and Nerissa
 - (b) Wool of the golden ram
 - (c) A warm, woollen blanket
 - (d) Bassanio and Gratiano
- (iv) "The quality of mercy is not strained." Who says this to whom?
- (a) Duke to Shylock
 - (b) Gratiano to Shylock
 - (c) Portia to Shylock
 - (d) Bassanio to Shylock
- (v) What does Portia ask of Antonio as a remembrance before she leaves the courtroom?
- (a) his ring
 - (b) the knife
 - (c) the scroll
 - (d) his gloves
- (vi) When Lorenzo says, 'Fair ladies, you drop manna in the way / Of starved people.' he means that Portia and Nerissa have _____.
- (a) prepared a banquet for their husbands
 - (b) brought good news for Lorenzo and Antonio
 - (c) brought divine food from the monastery
 - (d) returned the rings to Bassanio and Gratiano
- (vii) Which of the following statements is NOT true of Maggie?
- (a) She was sent to the poorhouse
 - (b) She was bedridden
 - (c) She had an injured spine
 - (d) She had suffered a fall
- (viii) The short story 'The Little Match Girl' can be called a fairy tale because _____.
- (a) it is set in fairy land
 - (b) it has elements of magic and fantasy
 - (c) the little girl meets her fairy godmother
 - (d) the little girl marries a prince

- (ix) Why did the Gujar woman strike the big brass *gurrahs* with a stick?
- to produce a musical effect
 - to quieten the buffaloes
 - to see which ones were empty
 - to frighten the crocodiles
- (x) Choose the option that lists the sequence of events in the correct order.
- When the rain stopped, they rushed outdoors, forgetting all about Margot in their eagerness to experience the warmth of the sun.
 - The children carried the pleading and protesting Margot to the closet and locked her in.
 - It was then that they realised with shame that Margot was still locked in the closet; they had deprived her of what she longed for the most – the sun.
 - All too soon, the brief summer ended, and the children hurried indoors to escape the heavy rains.
- 4, 3, 2, 1
 - 3, 1, 2, 4
 - 1, 3, 4, 2
 - 2, 1, 4, 3
- (xi) In My Greatest Olympic Prize, '*Der Fuhrer*' refers to _____.
- Hitler
 - A Negro
 - Nazi youth
 - A sophomore
- (xii) Which of the following lines contains the same literary device as the one in 'I wandered lonely as a cloud,' from Wordsworth's poem, 'Daffodils'?
- 'And miles to go before I sleep / And miles to go before I sleep'
 - 'Fresh as a rose in June'
 - 'Thus Nature spoke – The work was done'
 - 'You're one month on in the middle of May'
- (xiii) Which of the following statements is used by Angelou to describe the **caged bird**?
- He opens his throat to sing
 - He dares to claim the sky
 - He leaps on the back of the wind
 - He thinks of another breeze

- (xiv) When did the angel appear to Abou Ben Adhem?
- (a) On a moonless night
 - (b) Three nights in a row
 - (c) Two nights in succession
 - (d) Twice the same night
- (xv) Select the option that shows the correct relationship between Statements (1) and (2) from Browning's poem, 'The Patriot'.
- Statement 1. The old walls rocked with the crowd and cries.
- Statement 2. There's nobody on the house-tops now.
- (a) (1) means the same as (2)
 - (b) (1) is a contrast of (2)
 - (c) (1) is true and (2) is false
 - (d) (1) is false and (2) is true
- (xvi) 'The eight other athletes *stopped in their tracks*' means that they _____.
- (a) stood poised to run
 - (b) turned slowly around
 - (c) slowed down gradually
 - (d) halted quite suddenly

SECTION B

(Answer one or more questions from this Section.)

DRAMA

(The Merchant of Venice by William Shakespeare)

Question 2

Read the extract given below and answer the questions that follow:

Portia: Away then! I am lock'd in one of them:
If you do love me, you will find me out.
Nerissa and the rest, stand all aloof.
Let music sound while he doth make his choice;
Then, if he lose, he makes a swan-like end,
Fading in music:

- (i) Where does the scene take place?

What does Portia mean when she says, 'If you do love me, you will find me out.'?

[3]

- (ii) What TWO words would you use to describe Portia's feelings at this point? [3]
 Give a reason for your answer.
- (iii) Explain Portia's reference to 'swan-like end'. [3]
- (iv) Later in the scene, Portia gives Bassanio a gift. [3]
 What does she give him?
 What does this gift symbolise?
- (v) What is the theme of the song sung in the background when Bassanio makes his choice? [4]
 How is the theme reflected in the choice he makes?
 What does Bassanio find in the casket that he chooses?

Question 3

Read the extract given below and answer the questions that follow:

Bassanio: *And, I beseech you,*
 Wrest once the law to your authority:
 To do a great right, do a little wrong,
 And curb this cruel devil of his will.

Portia: *It must not be. There is no power in Venice*
 Can alter a decree established:
 'Twill be recorded for a precedent,

- (i) Who is on trial? [3]
 Why is this person on trial?
- (ii) Explain in your own words Bassanio's request to Portia in the given extract. [3]
 What reason does he give for his request?
- (iii) How does Portia respond to Bassanio's request? [3]
 What TWO reasons does she give for her response?
- (iv) Who does Bassanio refer to as 'this cruel devil'? [3]
 What is this person's response to Portia's words in the given extract?
- (v) How is the 'cruel devil' punished at the end of the trial? [4]
 How fair, in your opinion, is this punishment?
 Justify your response.

SECTION C

(Answer one or more questions from this Section.)

PROSE - SHORT STORIES

(Treasure Trove – A Collection of Poems and Short Stories)

Question 4

Read the following extract from Norah Burke's short story, '*The Blue Bead*' and answer the questions that follow:

On the way back, she met her mother, out of breath, come to look for her, and scolding.

"I did not see till I was home that you were not there. I thought something must have happened to you."

And Sibia, bursting with her story, cried, "Something did!"

- (i) What are the tasks that Sibia was required to perform from a very young age? [3]
- (ii) What had delayed Sibia and separated her from the other village women on her way home that day? [3]
- What was Sibia doing when she heard the Gujar woman's cry for help?
- (iii) What were the dangers that the crocodile had to overcome before it could grow into the ferocious creature that Sibia encountered? [3]
- (iv) How does Sibia's knowledge of the ways of the jungle help her fight the crocodile? [3]
- (v) Compare and contrast the mother's mood with Sibia's in the given extract. [4]
Give one reason to explain why each one of them was feeling this way.

Question 5

⑯

Read the following extract from Jesse Owens's short story, '*My Greatest Olympic Prize*' and answer the questions that follow:

I wasn't too worried about all this. I'd trained, sweated and disciplined myself for six years, with the Games in mind. While I was going over on the boat, all I could think about was taking home one or two of those gold medals. I had my eye especially on the running broad jump.

- (i) What does Owens mean by ‘all this’?
What ‘Games’ does he refer to? [3]
- (ii) What made Owens confident of winning a gold medal or two? [3]
- (iii) What was the ‘*surprise*’ that Hitler had kept hidden from the world?
How did Owens feel when he came face to face with the ‘*surprise*’? [3]
- (iv) Describe Owens’ performance in the broad jump trials.
What doubts filled his mind at this time? [3]
- (v) What makes Luz Long’s behaviour at the ‘Games’ truly remarkable in the context of the times?
Identify a theme that is common to the short story ‘My Greatest Olympic Prize’ and the poem ‘Nine Gold Medals’. [4]

SECTION D

(Answer one or more questions from this Section.)

POETRY

(Treasure Trove – A Collection of Poems and Short Stories)

Question 6 (15)

Read the following extract from Leigh Hunt’s poem, ‘**Abou Ben Adhem**’ and answer the questions that follow:

*Exceeding peace had made Ben Adhem bold,
And to the presence in the room he said,*

- (i) The poem begins with a blessing. What is this blessing?
Explain its significance. [
- (ii) Explain in your own words the following lines and phrases from the poem:
 (a) ‘Making it rich and like a lily in bloom,’
 (b) A look made of all sweet accord
 (c) A great wakening light
- (iii) What was the angel doing in Abou Ben Adhem’s room?
What did Abou ask the angel?

- (iv) Why did Abou say to the angel, "Write me as one that loves his fellow men"? [3]
(Give the context)
- (v) Explain the last line of the poem: 'And lo! Ben Adhem's name led all the rest.' [4]
If you had to give the poem a different title, what would you call it?
Give a reason for your answer.

Question 7

Read the following extract from Robert Browning's poem, '*The Patriot*' and answer the questions that follow:

*Alack, it was I who leaped at the sun
To give it my loving friends to keep!
Nought man could do, have I left undone:
And you see my harvest, what I reap
This very day, now a year is run.*

- (i) What can you conclude of the Patriot's mood from the given lines? [3]
Quote the line from the given extract which tells us that the Patriot did his utmost to satisfy his people?
- (ii) The last line of the extract suggests that a year has gone by. [3]
How had the speaker been treated a year ago?
- (iii) How did the situation change a year later? Give details of his present state. [3]
- (iv) Why were only a 'palsied few' onlookers seated at the windows? [3]
Where had the other townspeople gone?
Why had they gone there?
- (v) How is the speaker's faith in God revealed at the end of the poem? [4]
Do you think the poem ends on a note of hope or despair? Justify your answer.

GEOGRAPHY
(H.C.G. PAPER – 2)

Maximum Marks: 80

Time allowed: Two hours

Answers to this paper must be written on the answer sheet provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Part I is compulsory. All questions from Part I are to be attempted.

A total of five questions are to be attempted from Part II.

The intended marks for questions or parts of questions are given in brackets [].

To be supplied with this paper: Survey of India Map Sheet No. G43S7 and 20 cm of twine.

Note:

- (i) *In all map work, make wise use of arrows to avoid overcrowding of the map.*
- (ii) *The extract of Survey of India Map Sheet No. G43S7 must not be taken out of the examination hall. It must be handed over to the Supervising Examiner on completion of the paper.*
- (iii) *The map given at the end of this question paper must be detached, and after marking, must be fastened to your answer booklet.*
- (iv) *All sub-sections of the questions attempted must be answered in the correct serial order.*
- (v) *All working including rough work should be done on the same answer sheet which is used to answer the rest of the paper.*

This paper consists of 10 printed pages and 1 outline map of India.

PART I (30 Marks)

(Attempt all questions from this Part.)

Question 1

Study the extract of the Survey of India Map Sheet No. G43S7 and answer the following questions:

- (i) (a) Give the *six-figure grid reference* for spot height .522. [2]
(b) What is the *pattern of settlement* in the grid square 3591?
- (ii) (a) Mention **two man-made features** seen in the grid square 3794. [2]
(b) Mention **two means of transport** used by the people of Nani Bhatamal in the grid square 3691.
- (iii) (a) Identify the *landform* marked by the contours in the grid square 3896. [2]
(b) What is the *pattern of drainage* seen in the grid square 3697?
- (iv) (a) What is the reason for the *presence of causeway* in the grid square 3695? [2]
(b) What is the *compass direction* of Khara (4097) from Karja (3994)?
- (v) Calculate the *area in kilometre square* of the region to the south of 94 Northing. [2]

Question 2

On the outline map of India provided:

- (i) Mark and label the *river Krishna*. [1]
- (ii) Mark and label the *Eastern Ghats*. [1]
- (iii) Shade and label a *densely populated area* in the *southern part of India*. [1]
- (iv) Shade and label the *Konkan coastal plain*. [1]
- (v) Mark with an arrow and label the direction of western disturbance. [1]
- (vi) Shade and label the *Thar Desert*. [1]

- (vii) Shade and label the *Andaman Sea*. [1]
- (viii) Mark and label the city *Chennai*. [1]
- (ix) Mark and name the *highest peak of Himalayas in India*. [1]
- (x) Mark and label *Mumbai High*. [1]

Question 3

Choose the correct answers to the questions from the given options. [10]

(Do not copy the questions, write the correct answers only.)

- (i) What causes snowfall in Kashmir *during winter*?
- (a) Tropical cyclone
 - (b) Northeast Monsoon wind
 - (c) Southwest Monsoon wind
 - (d) Temperate cyclone
- (ii) Which of the following helps in soil conservation?
- (a) Afforestation
 - (b) Overgrazing
 - (c) Mining
 - (d) Shifting agriculture
- (iii) Which means of irrigation can be developed with minimum expenditure?
- (a) Tube well
 - (b) Canal
 - (c) Well
 - (d) Drip irrigation

(iv) Read the table and identify the pair that is **correctly matched**:

	Natural Vegetation Belt	Tree
P	Tropical evergreen	Babool
Q	Tropical deciduous	Teak
R	Littoral	Ebony
S	Mountain forest	Banyan

(a) P

(b) Q

(c) R

(d) S

(v) Bauxite is the ore of:

(a) Aluminium

(b) Copper

(c) Manganese

(d) Iron

(vi) Identify the source of energy that leads to pollution:

(a) Tidal energy

(b) Wind energy

(c) Natural gas

(d) Geo-thermal energy

(vii) Which of the following is **NOT** a centre for the iron and steel industry?

(a) Bhilai

(b) Bengaluru

(c) Rourkela

(d) Vishakhapatnam

- (viii) Which of the following farming method is used to grow tea on a large scale?
- (a) Subsistence farming
 - (b) Plantation farming
 - (c) Mixed farming
 - (d) Shifting agriculture
- (ix) Which of the following means of transport has best use during floods / earthquake?
- (a) Airways
 - (b) Railways
 - (c) Roadways
 - (d) Waterways
- (x) Which of the following is a biodegradable waste?
- (a) Broken glass
 - (b) Wastepaper
 - (c) Polythene
 - (d) Plastic bags

PART II (50 Marks)

(Attempt any five questions from this Part.)

Question 4

- (i) 'Himalayas act as a climatic divide.' Justify the statement giving two reasons. [2]
- (ii) Differentiate between Southwest Monsoon and Retreating Monsoon. (*Any two differences*) [2]
- (iii) Give a geographical reason for the following: [3]
- (a) Kolkata gets more rain than Delhi during rainy season.
 - (b) Though both are hill stations, Shimla experiences snowfall during the winters but Ooty does not.
 - (c) Winter monsoons bring less rain.

(iv) Study the climate data of Station X and answer the questions that follow: [3]

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp C	8.4	11.5	21.6	28.3	35.1	38.5	41.0	38.0	30.8	29.2	15.6	10.2
Rainfall cms	1.5	0.9	0.5	-	-	12.5	17.8	18.5	12.5	12.5	6.2	2.1

- Calculate the annual range of temperature of Station X.
- Name the雨iest month of the Station X.
- Is the Station X located in coastal area or in the continental interior?

Question 5

- Why is Black soil found suitable for the production of cotton? (*Any two points*) [2]
- Give *one* difference between each of the following: [2]
 - Alluvial soil of *Uttarakhand* and alluvial soil of *West Bengal*.
 - Transported soil and residual soil.
- With reference to *Laterite soil*, answer the questions that follow: [3]
 - How is Laterite soil formed?
 - How can Laterite soil be made productive?
 - Name *one* region where Laterite soil is found.
- (a) Mention *two* causes of soil erosion in India. [3]
(b) Mention a soil conservation method suitable for hilly area.

Question 6

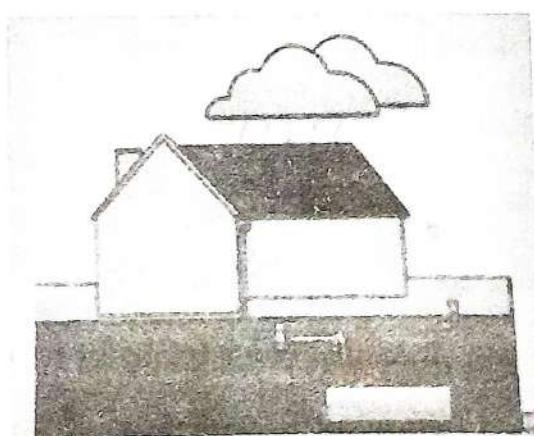
- How is tropical monsoon forest useful for the Indian economy? (*Any two points*) [2]
- Mention the climatic condition that leads to the development of tropical desert vegetation.
50 cm - 100 cm
20°C - 35°C [2]

- (iii) Give a reason to explain each of the following: [3]
- Mountains have varied vegetation.
 - Stilt like / aerial roots are a typical feature of littoral forest.
 - The tropical evergreen forests do not look bare at any time of the year.
- (iv) (a) How has the rising population of India resulted in the loss of forest cover? [3]
(Any one point)
- (b) Mention *any two* forest conservation methods that may be adopted to protect the forests.

Question 7

- (i) Mention *one* advantage and *one* disadvantage of using tank irrigation. [2]
- (ii) (a) What is the advantage of using Drip irrigation? [2]
- (b) Why is Drip irrigation not practiced on a large scale in India?
- (iii) Give a reason to explain each of the following: [3]
- Sprinkler irrigation is gaining popularity in recent times.
 - Tube well irrigation is used in Punjab.
 - North India has more area under canal irrigation.

(iv)



[3]

- Name the water conservation practice shown in the above picture.
- How does this system help to reduce floods?
- Why is water conservation necessary? (*Any two reasons*)

Question 8

[2]

- (i) (a) Name *any three* varieties of coal produced in India.
(b) Name the *variety of coal* widely used in Iron and Steel Industries of India. [2]
- (ii) (a) Name the state that is the largest producer of iron ore in India.
(b) Name *any one* mining area of Iron ore from the state mentioned by you. [2]
- (iii) (a) Mention *two* ways in which *Hirakud dam* has helped the people of Odisha? [3]
(b) Across which *river* is the *Hirakud dam* built?
- (iv) Give reasons for each of the following:
(a) *Geothermal* energy is not popular in India.
(b) *Solar energy* is gaining popularity.
(c) *Petroleum* is considered a harmful source of energy.

Question 9

- (i) Why is agriculture considered an important sector of Indian economy? (*Any two points*) [2]
- (ii) (a) What is *mixed farming*?
(b) Mention *any one* advantage of mixed farming. [2]
- (iii) Give *one* reason to explain each of the following:
(a) West Bengal is a leading producer of jute.
(b) Millets are fast becoming the popular food crops.
(c) More than two ratoon crops are not advisable for sugarcane farmers. [3]
- (iv) (a) With reference to tea cultivation, explain the term 'fine pluck'.
(b) Name the Indian state that leads in coffee production.
(c) Why is cotton grown as a Kharif crop in India? [3]

Question 10

- (i) (a) Based on the ownership, what type of industry is Visakhapatnam Steel Plant? [2]
(b) What is meant by cooperative sector industry?
- (ii) Explain the following terms: [2]
- (a) Sericulture
(b) Integrated steel plant
- (iii) Give *one* reason to explain each of the following: [3]
- (a) *Mini-steel plants* help in conservation of coal.
(b) Location of *sugar industry* is shifting to the southern part of India.
(c) The electronic industry is growing at a fast rate.
- (iv) (a) State *two* conditions that favour the location of cotton textile industry in Ahmedabad. [3]
(b) State *any one* advantage of locating Iron and Steel industry at Rourkela.

Question 11

- (i) Why is *road transport* an important means of transport in India? (*Any two reasons*) [2]
- (ii) Give a reason for each of the following: [2]
- (a) Northern plain is best suited for the development of Railways.
(b) Railways are managed completely by the Central Government.
- (iii) Mention *two* advantages and *one* disadvantage of Inland water transport. [3]
- (iv) Why has airway become more popular than other means of transport? (*Any three reasons*) [3]

Question 12

[2]

- (i) With reference to the picture below, answer the questions that follow:



- (a) Which waste management method is depicted here? [2]
- (b) State *one* way in which this method may be implemented at our home.
- (ii) Explain how waste accumulation can be harmful. (*Any two points*) [2]
- (iii) Explain how waste generated in following sectors *may be made useful*. (*Give one example for each*) [3]
- (a) Household
- (b) Industry
- (c) Agriculture
- (iv) (a) Give *two* uses of composting. [3]
- (b) Why are landfills set up far away from the city? (*Any two reasons*)

HINDI

(Second Language)

Maximum Marks : 80

Time Allowed : Three Hours

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Section A is compulsory - All questions in **Section A** must be answered.

Attempt any **four** questions from **Section B**, answering at least **one** question each from the two books you have studied and any **two** questions from the same books you have studied.

The intended marks for questions or parts of questions are given in brackets [].

SECTION—A (40 Marks)

Attempt all questions from this Section.

Question 1

Write a short composition in **Hindi** of approximately **250** words on any **one** of the following topics :—

[15]

निम्नलिखित विषयों में से किसी एक विषय पर लगभग **250** शब्दों में संक्षिप्त हिन्दी लेख लिखिए :—

- (i) कुछ समय पहले किसी अवकाश के समय आप सपरिवार किसी पहाड़ी स्थान पर घूमने गए, दुर्भाग्यवश पर्यटकों की भीड़ के कारण आपको बहुत सी विकट समस्याओं का सामना करना पड़ा। अपने इस अनुभव का वर्णन प्रस्ताव के रूप में लिखिए।
- (ii) तकनीकी विकास ने हमारा जीवन सरल तथा सुगम बना दिया है। किसी एक तकनीक के विषय में विस्तार से बताते हुए यह भी स्पष्ट कीजिए कि यह तकनीक हमारे देश के विकास में सहयोगी कैसे है ?
- (iii) आज महानगरों में बड़े-बड़े 'शॉपिंग मॉल' स्थान-स्थान पर दिखाई देते हैं। इतने 'शॉपिंग मॉल' बनने के कारणों पर प्रकाश डालते हुए एक प्रस्ताव लिखिए कि जब आप अपने परिवार के साथ किसी मॉल को घूमने गए तो आप को वहाँ किन-किन चीजों ने सबसे अधिक आकर्षित किया तथा वहाँ आपने क्या-क्या खरीदा ?

This Paper consists of 12 printed pages.

- (iv) आपने वहाँ की स्थिति देखी और आपके मुँह से निकला अरे ! ऐसा भी होता है क्या ? इस वाक्य से आरम्भ अथवा अन्त करते हुए एक मौलिक कहानी लिखिए।
- (v) नीचे दिए गए चित्र को ध्यान से देखिए और चित्र को आधार बनाकर उसका परिचय देते हुए कोई लेख घटना अथवा कहानी लिखिए, जिसका सीधा व स्पष्ट संबंध चित्र से होना चाहिए।



Question 2

Write a letter in **Hindi** of approximately **120** words on any **one** of the topics given below :—

[7]

निम्नलिखित में से किसी एक विषय पर हिन्दी में लगभग **120** शब्दों में पत्र लिखिए :—

- (i) आप के एक मित्र ने हाल ही में किसी नए विद्यालय में प्रवेश लिया है लेकिन वहाँ के कुछ पुराने विद्यार्थी उसे परेशान कर रहे हैं। इस स्थिति का हिम्मतपूर्वक सामना करने की सलाह देते हुए अपने इस मित्र को एक पत्र लिखिए।
- (ii) आप गाँव में स्थित किसी विद्यालय में गए वहाँ की बुरी स्थिति देखकर उसके सुधार हेतु शिक्षा मंत्री को पत्र लिखिए।

Question 3

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible :—

निम्नलिखित गद्यांश को ध्यान से पढ़िए और उस के नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए।
उत्तर यथासंभव आपके अपने शब्दों में होने चाहिए :—

दक्षिण पूर्वी एशिया के दो छोटे किन्तु महत्वपूर्ण देश हैं — कंबोडिया और लाओस। कई वर्ष पहले की बात है इन दोनों देशों में पहले अच्छी मित्रता हुआ करती थी लेकिन अब ये दो पड़ोसी देश आपस में युद्ध करने की तैयारी कर रहे थे। झगड़ा दोनों देशों में बहने वाली एक नदी को लेकर था। नदी का नाम था 'मीकांग' जो लाओस से निकलकर कंबोडिया में बहती थी। दोनों देशों के लिए यह नदी बहुत महत्वपूर्ण थी। साथ ही दोनों देशवासी उसे पूजते भी थे। नदी के पानी की सिंचाई से दोनों देशों के लेत हरे-भरे रहते थे। दोनों देश मीकांग को जीवनदायिनी समझते थे दोनों का उस पर दावा था। इस मामले को लेकर स्थिति इतनी बिगड़ गई कि एक बार वे एक-दूसरे के देश पर हमला करने को तैयार हो गए और अपनी-अपनी सेनाएँ लेकर आमने-सामने खड़े हो गए।

अचानक महात्मा बुद्ध वहाँ युद्ध भूमि में पहुँच गए। उन्होंने युद्ध के लिए तैयार देशों की विशाल सेनाएँ देखी। महात्मा बुद्ध को इस प्रकार वहाँ अचानक देखकर दोनों की सेनाओं में खलबली मच गई। बुद्ध ने दोनों देशों के राजाओं, मंत्रियों तथा अन्य अधिकारियों को अपने पास बुलाया। दोनों सेनाओं के बीच खड़े हो कर उन्होंने उन सभी से प्रश्न किया कि वे लोग आपस में क्यों युद्ध करने जा रहे हैं ? बुद्ध को दोनों सेनाओं से यही जवाब मिला कि उन के जीवन की आधार 'मीकांग' नदी के जल के लिए यह युद्ध होने जा रहा है। बुद्ध ने पुनः प्रश्न किया कि नदी के जल और मानव के रक्त दोनों में से कौन अधिक मूल्यवान है। एक स्वर में दोनों ओर से जवाब मिला कि मानव का रक्त निस्सदेह नदी के जल से अधिक मूल्यवान् है। भगवान बुद्ध ने दोनों पक्षों को समझाते हुए कहा कि शायद दोनों देशों की आपसी ईर्ष्या के कारण स्थिति इतनी बिगड़ गई थी कि उन्हें लगने लगा था कि इस नदी के जल को बाँटने की समस्या का हल केवल युद्ध से हो सकता है। बुद्ध ने उन्हें समझाया कि समस्याओं का हल युद्ध के द्वारा निकालना संभव नहीं है। महात्मा बुद्ध की बातों को सुनकर दोनों सेनाओं में शांति छा गयी और दोनों पक्षों के लोग सोच में पड़ गए। महात्मा बुद्ध के सुझाव के अनुसार उन दोनों देशों ने मिल कर एक शांति सभा बनाई। उस शांति सभा ने दोनों देशों के दावे को ध्यान से सुना। उन्होंने दोनों देशों में जाकर असली स्थिति को अपनी आँखों से खुद देखा और समझा कि यह नदी तो इन दोनों के लिए ही समान महत्व रखती है। फिर इसके लिए विवाद कैसा ? इसी विषय पर खूब सोच-विचार करने के बाद, अंत में उस सभा ने एक दिन ऐसा निर्णय दिया कि दोनों देश मान गए। आखिरकार उन के बीच होने वाला युद्ध टल गया और दोनों देशों में फिर से मित्रता हो गई। इसलिए कहते हैं कि मनुष्य का विवेक और समझ एक ऐसी शक्ति होती है

जिसके द्वारा मानव हिंसात्मक और सर्वनाशकारी युद्धों तक को रोक सकता है और शांति के साथ प्रेमपूर्वक जीवन बिता सकता है तथा दूसरों के लिए प्रेरणा भी बन सकता है।

- (i) कंबोडिया और लाओस कहाँ स्थित हैं और पहले इन दोनों देशों के आपसी संबंध कैसे थे ? [2]
- (ii) कौनसी नदी इन दोनों देशों के लिए बहुत महत्वपूर्ण थी और क्यों ? [2]
- (iii) एक दिन अचानक महात्मा बुद्ध कहाँ पहुँच गए थे ? वहाँ जाकर उन्होंने अपने पास किसे और क्यों बुलाया ? [2]
- (iv) अंत में कंबोडिया और लाओस के बीच की समस्या को किस प्रकार सुलझाया गया ? [2]
- (v) इस कहानी से मिलने वाली उन शिक्षाओं को लिखिए जो आज के समय में भी विश्व में शांति बनाए रखने में काम आ सकती हैं। [2]

Question 4

Answer the following according to the instructions given below :— [8]

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :—

- (i) 'आहार' का विलोम बताइए :
- (a) शाकाहार
 - (b) निराहार
 - (c) माँसाहार
 - (d) उपहार
- (ii) 'दिन' का उचित पर्यायवाची शब्द बताइए :
- (a) निशि - वासर
 - (b) दिवा - देव
 - (c) दिवस - वार
 - (d) रजनी - रमणी
- (iii) 'कमाना' की भाववाचक संज्ञा बताइए :
- (a) कम
 - (b) कमी
 - (c) कमाऊ
 - (d) कमाई

(iv) 'पत्थर' का विशेषण बताइए :

- (a) पथरी
- (b) पाथरी
- (c) पत्थरशिला
- (d) पथरीला

(v) 'पतीवरता' शब्द का शुद्ध रूप बताइए :

- (a) पतीव्रता
- (b) पतिव्रता
- (c) पतिवर्ता
- (d) प्रतिव्रता

(vi) 'उन्नीस बीस का अन्तर' मुहावरे का अर्थ बताइए :

- (a) अत्यधिक अन्तर होना
- (b) गिनती का अन्तर होना
- (c) एक समान होना
- (d) बहुत कम अन्तर होना

(vii) निर्देशानुसार उचित वाक्य बताइए :

कई बार देश की रक्षा से जुड़े फैसलों को गुप्त रखा जाना आवश्यक होता है।

(रेखांकित वाक्यांश हेतु उपयुक्त शब्द का प्रयोग किस विकल्प में हुआ है।)

- (a) कई बार देश की रक्षा से जुड़े फैसले रहस्यमयी होते हैं।
- (b) कई बार देश की रक्षा से जुड़े फैसले गुप्तचर होते हैं।
- (c) कई बार देश की रक्षा से जुड़े फैसले गोपनीय होते हैं।
- (d) कई बार देश की रक्षा से जुड़े फैसले अल्पचर्चित होते हैं।

(viii) निर्देशानुसार उचित वाक्य बताइए :

रोगी की दिशा ठीक नहीं है।

(रेखांकित शब्द के स्थान पर उचित शब्द का प्रयोग कीजिए।)

- (a) रोग
- (b) दशा
- (c) दया
- (d) बीमारी

SECTION—B (40 Marks)

Questions from only two textbooks are to be answered.

Attempt four questions from this section.

You must answer at least one question from each of the two books you have studied and any two other questions from the same books that you have chosen.

साहित्य सागर – संक्षिप्त कहानियां

SAHITYA SAGAR – SHORT STORIES

Question 5

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

‘चुपचाप बैठे तंग हो रहा था, कुढ़ रहा था कि मित्र अचानक बोले—“देखो वह क्या है ?”’
मैंने देखा कि कोहरे की सफेदी में कुछ ही हाथ दूर से एक काली-सी मूर्ति हमारी तरफ आ रही थी,
मैंने कहा—“होगा कोई !”

अपना-अपना भाग्य - श्री जैनेन्द्र कुमार

- (i) ‘मैंने’ शब्द से किसकी ओर संकेत किया गया है ? वह इस समय किस स्थान पर है ? [2]
- (ii) ‘काली-सी मूर्ति’ किसकी थी ? लेखक ने उसकी दशा का वर्णन किस प्रकार किया है ? [2]
- (iii) बालक कहाँ का रहनेवाला था ? उसने अपने तथा अपने परिवार के विषय में क्या जानकारी दी ? [3]
- (iv) प्रस्तुत कहानी मनुष्य की संवेदनहीनता का यथार्थ चित्रण प्रस्तुत करती है – कहानी का उदाहरण देकर इस कथन को सिद्ध कीजिए। [3]

Question 6

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

बेनी माधव सिंह पुराने आदमी थे। इन भावों को ताड़ गए। उन्होंने निश्चय किया कि चाहे कुछ भी क्यों न हो, इन द्वेषियों को ताली बजाने का अवसर न दूँगा। तुरंत कोमल शब्दों में बोले “बेटा, मैं तुम से बाहर नहीं हूँ। तुम्हारा जो जी चाहे करो, अब तो लड़के से अपराध हो गया।”

बड़े घर की बेटी - प्रेमचंद

- (i) कथन के वक्ता एवं श्रोता का परिचय दीजिए। [2]
- (ii) ‘इन भावों को ताड़ गए’ कथन किस संदर्भ में कहा गया है ? श्रोता ने उसे क्यों नहीं समझा था ? स्पष्ट कीजिए। [2]
- (iii) किस लड़के से, कौन सा अपराध हो गया था और क्यों ? समझाकर लिखिए। [3]
- (iv) क्या श्रोता ने अपराध के लिए माफ़ किया ? श्रोता का हृदय-परिवर्तन कराने में कौन, किस प्रकार सहायक था ? [3]

Question 7

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

वह भी अच्छी तरह से किस-किस को देखे। “आज कल तो ऐसा लगता है, मानो पूरा शहर ही अस्पताल में उमड़ आया है। समझ में नहीं आता, ऐसी भीड़ क्यों है ?”

भीड़ में खोया आदमी - लीलाघर शर्मा पर्वतीय

- (i) प्रस्तुत पंक्तियां किस संदर्भ में कही गई हैं ? [2]
- (ii) श्रोता कहाँ गया था और क्यों ? [2]
- (iii) पाठ में वर्णित भीड़ का क्या कारण है ? इस भीड़ का क्या परिणाम सहना पड़ रहा है ? [3]
- (iv) इस भीड़ से कैसे बचा जा सकता है ? लेखक अपने मित्र को भीड़ का रहस्य क्यों समझाना नहीं चाहते हैं ? उदाहरण सहित बताइए। [3]

साहित्य सागर – पद्य भाग

SAHITYA SAGAR – PADYA BHAG

Question 8

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

क्या राह में परिचय कहूँ राही हमारा नाम है।

चलना हमारा काम है।

जीवन अपूर्ण लिए हुए पाता कभी, खोता कभी,

आशा-निराशा से धिरा, हँसता कभी, रोता कभी।

गति मति न हो अवरुद्ध, इसका ध्यान आठों याम है।

चलना हमारा काम है – शिवमगल मिंह मुमन

- (i) 'राही' किसे कहा गया है और क्यों ? [2]
- (ii) कवि के अनुसार प्रत्येक व्यक्ति को जीवन में किस-किस प्रकार के अनुभवों का सामना करना पड़ता है ? [2]
- (iii) 'आठों याम' से कवि का क्या अभिप्राय है ? इस समय में कवि प्रभु से क्या प्रार्थना करते हैं और क्यों ? [3]
- (iv) जीवन में निरतर चलते रहना क्यों आवश्यक है ? यदि मनुष्य के दिन में लगातार चलने की चाह ही नहीं रहे तो इस के क्या-क्या दुष्परिणाम हो सकते हैं ? कविता के आधार पर बताइए। [3]

Question 9

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

ऐसो को उदार जग माही।

बिनु सेवा जो द्वै दीन पर राम सरिस कोउ नाही।

जो गति जोग विराग जतन करि, नहि पावत मुनि-ज्ञानी।

सो गति देते गीध, सबरी कहूँ प्रभु न बहुत जिय जानी।

जो सपति दस सीस अरप करि, रावन सिव पहँ लीन्ही।

सो सपदा विभीषण कहूँ अति सकुच सहित प्रभु दीन्ही।

तुलसीदास सब भाँति परम सुख, जो चाहसि मन मेरो।
तौ भजु राम, काम सब पूरन करै, कृपानिधि तेरो।

विनय के पद- तुलसीदास

- (i) तुलसीदास जी किस काल एवं शाखा के कवि थे ? उनकी भक्ति-भावना पर प्रकाश डालिए। [2]
- (ii) प्रस्तुत पद में “गति” शब्द से क्या तात्पर्य है ? राम ने गीध और सबरी को यह गति कब प्रदान की थी ? [2]
- (iii) विभीषण का परिचय दीजिए। राम ने उसे कौन-सी संपदा प्रदान कर अपनी उदारता दिखाई तथा उदारता दिखाते समय उनका भाव किस प्रकार का था ? [3]
- (iv) पद की अंतिम दो पंक्तियों का भाव स्पष्ट कीजिए। [3]

Question 10

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित पदांशु को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

मेघ आए बड़े बन-ठन के सँवर के।
आगे-आगे नाचती-गाती बयार चली,
दरवाजे-खिड़कियाँ खुलने लगी गली-गली,
पाहुन ज्यों आए हो, गाँव में शहर के।
मेघ आए बड़े बन-ठन के सँवर के।
पेड़ झुक झाँकने लगे गरदन उचकाए,
आँधी चली, धूल भागी धाघरा उठाए,
बाँकी चितवन उठा नदी ठिंठकी, धूँघट सरकाए
मेघ आए बड़े बन-ठन के सँवर के।

मेघ आए – सर्वेश्वर दयाल सक्सेना

- (i) मेघ कहाँ आए हैं और कब आए हैं ? [2]
- (ii) बयार को किस का प्रतीक बताया गया है ? उसके आने पर गाँव वालों की क्या स्थिति थी ? [2]
- (iii) पेड़, धूल भरी आँधी तथा नदी को किस-किस का प्रतीक बताया गया है ? समझाइए। [3]
- (iv) प्रस्तुत कविता में किस अलंकार का प्रयोग किया गया है तथा जिस ऋतु के विषय में बताया गया है उसके विषय में चार पक्तियाँ लिखिए। [3]

नया रास्ता - सुषमा अग्रवाल

NAYA RAASTA – SUSHMA AGARWAL

Question 11

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

लगभग एक सप्ताह यही कम चलता रहा। हर समय एक व्यक्ति उनके पास बैठा रहता। कभी माँ तो कभी मीनू, कभी रोहित तो कभी आशा। उन सबकी सेवा व ईश्वर के आशीर्वाद से पिताजी की दशा में काफी सुधार हो गया। अब वे धीरे-धीरे अपने आप बैठने भी लगे थे, और थोड़ी देर बातें भी कर लेते थे। प्रातः लगभग नौ बजे का समय था। उस समय हल्की हल्की वर्षा की बूँदें पड़ रही थीं। तभी घर के बाहर एक कार आकर रुकी।

- (i) 'पिताजी' को क्या हुआ था ? डॉक्टर ने उन्हें क्या सलाह दी थी ? [2]
- (ii) कार से कौन आए थे और क्यों ? [2]
- (iii) बुआ जी जाते-जाते अपने भैया को क्या-क्या सलाह दे गई ? क्या उपर्युक्त अवसर पर उनकी यह सलाह उचित थी ? समझाइए। [3]
- (iv) पिताजी द्वारा मीनू को शादी का सुझाव दिए जाने पर मीनू ने उन्हें क्या कहकर समझाया ? [3]

Question 12

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

"परंतु मैं तो इस पक्ष में जरा भी नहीं हूँ। हमारी भारत सरकार हमारी पढ़ाई पर कितना पैसा खर्च करती है और हम चंद पैसों के कारण विदेशों में जा कर बस जाएँ ? यदि सभी बुद्धिजीवी विदेशों में जाकर बस जाएँगे तो हमारे देश की उन्नति किस प्रकार संभव हो सकेगी।"

- (i) वक्ता इस समय किस से मिलने आई है ? वक्ता के यहाँ आने का कारण भी बताइए। [2]
- (ii) इस समय यहाँ किस व्यक्ति के विषय में और क्या बात की जा रही है जिसे सुनकर वक्ता ने यह सब कहा था ? [2]
- (iii) प्रस्तुत पंक्तियों के आधार पर वक्ता के चरित्र की 'तीन' विशेषताओं पर प्रकाश डालिए। [3]
- (iv) विद्यार्थियों में अपने देश के बजाय विदेश में शिक्षा प्राप्त करने की बढ़ती चाह के कारण भविष्य में देश को किन-किन समस्याओं का सामना करना पड़ सकता है ? समझाकर लिखिए। [3]

Question 13

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

“यह सब समय का फेर है, दीदी ! मेरे भाग्य में यही सब लिखा था। मुझे एक फैक्ट्री में नौकरी मिल गई थी। मैं अपने को बहुत खुशनसीब समझ रहा था कि मुझे इतनी छोटी उम्र में ही नौकरी मिल गई।”

- (i) ‘दीदी’ कह कर किसे संबोधित किया गया है ? वक्ता का संक्षिप्त परिचय दीजिए। [2]
- (ii) ‘समय का फेर’ किसे कहा जा रहा है और इस समय के फेर से वक्ता पर क्या प्रभाव पड़ा था ? [2]
- (iii) ‘दीदी’ ने वक्ता की सहायता क्यों, कब और किस प्रकार से की थी ? [3]
- (iv) अवतरण में दी गई पंक्तियों के आधार पर उदाहरण सहित सिद्ध कीजिए कि मुसीबत में पड़े व्यक्ति की सहायता करना ही मनुष्य का सब से बड़ा धर्म और कर्तव्य होता है। [3]

एकांकी संचय

EKANKI SANCHAY

Question 14

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :—

‘मुझे न जाने क्या हो रहा था। मेरा अंतर्मन काँपने लगा था; मैं उन्हें देखती थी तो जैसे मोहिनी-सी छा जाती थी। मैं थी भी और नहीं भी। मोहग्रस्त आदमी होता भी है और नहीं भी होता, पर हुआ यही, मैं वहाँ न ठहर सकी।’

संस्कार और भावना – विष्णु प्रभाकर

- (i) किसका अंतर्मन कब काँपने लगा था ? [2]
- (ii) किन्हें देख कर वक्ता को मोहिनी सी छा गई थी और क्यों ? [2]
- (iii) अंत में माँ का हृदय परिवर्तन कब क्यों और किस प्रकार हुआ ? [3]
- (iv) ‘संस्कारों की दासता’ से आप क्या समझते हैं ? आधुनिक युग में हमारे लिए संस्कार अधिक महत्वपूर्ण है या भावनाएँ ज्यादा महत्व रखती हैं ? तर्क सहित उत्तर लिखिए। [3]

Question 15

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखें प्रश्नों के उत्तर हिंदी में लिखिए :—

“पश्चाताप तो तुम्हें होना चाहिए। मैं क्यों पश्चाताप करूँगा ? मैंने ऐसा कौनसा पाप किया है ? मैंने अपने मन के भावों को गुप्त नहीं रखा, मैंने पद्यन्त्र नहीं किया, मैंने गुरुजनों का वद्य नहीं किया।”

महाभारत की एक साँझ — भारत भूषण अग्रवाल

- (i) प्रस्तुत पंक्तियों के वक्ता और श्रोता का परिचय दीजिए। [2]
- (ii) वक्ता पश्चाताप क्यों नहीं करना चाहता ? वह अपने पक्ष में कौन-कौन से तर्क रखता है ? [2]
- (iii) आपके अनुसार पश्चाताप किसे होना चाहिए था ? वक्ता को या श्रोता को, तर्कसहित लिखिए। [3]
- (iv) श्रोता वक्ता के पास क्यों आया था ? अन्त में वक्ता का क्या हाल होता है और क्यों ? [3]

Question 16

Read the extract given below and answer in **Hindi** the questions that follow :—

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखें प्रश्नों के उत्तर हिंदी में लिखिए :—

“मुझे किसी ने बताया तक नहीं यदि कोई शिकायत थी तो उसे मिटा देना चाहिए था। हल्की सी खरोंच भी, यदि उस पर तत्काल दर्वाई ना लगा दी जाए, तो बढ़कर एक बड़ा घाव बन जाती है और यही घाव नासूर हो जाता है, फिर लाख मरहम लगाओ ठीक नहीं होता।”

सूखी डाली - उपेंद्रनाथ अश्क

- (i) कथन का वक्ता कौन है ? उसका परिचय दीजिए। [2]
- (ii) कथन का श्रोता कौन है ? श्रोता ने ऐसा क्या कहा था कि वक्ता को उपर्युक्त बात कहनी पड़ी ? [2]
- (iii) ‘नासूर’ शब्द का अर्थ लिखकर बताइए कि इस समस्या के समाधान के लिए वक्ता के क्या विचार है ? [3]
- (iv) ‘सूखी डाली’ एकांकी किस पृष्ठभूमि पर आधारित है ? इसके शीर्षक की सार्थकता पर भी प्रकाश डालिए। [3]

HISTORY & CIVICS

(H.C.G. Paper – 1)

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the answer sheet provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt all questions from Part I (Compulsory).

A total of five questions are to be attempted from Part II, two out of three questions from Section A and three out of five questions from Section B.

The intended marks for questions or parts of questions are given in brackets [].

PART I (30 Marks)

(Attempt all questions from this Part.)

Question 1

Select the correct answers to the questions from the given options.

[16]

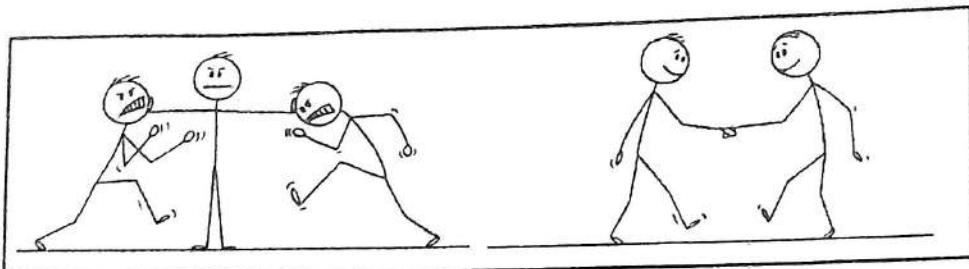
(Do not copy the questions, write the correct answer only).

- (i) The salaries and allowances of the ministers are decided by the:
 - (a) Parliament
 - (b) Finance Minister
 - (c) President
 - (d) Prime Minister

- (ii) Civil Cases : Court of District Judge : : Criminal Cases :
 - (a) Revenue Court
 - (b) Family Court
 - (c) Sessions Court
 - (d) Commissioner's Court

This paper consists of 8 printed pages.

(iii)



The Lok Adalat has many advantages. Which of the following statements about the advantages of the Lok Adalat is best described in the picture given above?

- (a) It is inexpensive
- (b) It is organised in various parts of the country
- (c) It works on the spirit of compromise
- (d) It reduces the burden of the higher courts

(iv) Given below are details of Indian citizens. Select the ones who are eligible for appointment as a High Court Judge:

Candidate	Age	Details
P	65	Is a distinguished jurist
Q	61	Has been a High Court Advocate for 10 years
R	67	Has been a High Court Advocate for 5 years
S	56	Has held a judicial office for at least 10 years

- (a) P and R
- (b) Q and S
- (c) R and P
- (d) Q and R

(v) The strength of the house is 550. On a particular day 50 members are present. The speaker decides to adjourn the house. Identify the **MOST LIKELY** reason for the adjournment.

- (a) Disorder in the house
- (b) Lack of quorum
- (c) Breach of privilege
- (d) Contempt of the House

- (vi) During a *hung assembly* when no party gets the majority, the President appoints the Prime Minister. What power is the President exercising?
- (a) Legislative
 - (b) Executive
 - (c) Discretionary
 - (d) Judicial
- (vii) Read the two statements given below and select the option that shows the correct relationship between (A) and (R):
- Assertion (A):** Forward Bloc had the objective of abolishing Zamindari System.
- Reason (R):** Subhash Chandra Bose wanted to establish a socialist state.
- (a) A is true but R is false
 - (b) R is the reason for A
 - (c) Both A and R are false
 - (d) Only R is true, A is false
- (viii) The _____ aimed to introduce equality between British and Indian Judges.
- (a) Vernacular Press Act
 - (b) Gagging Act
 - (c) Indian Universities Act
 - (d) Ilbert Bill
- (ix) The Rowlatt Act was called the *Black Act* because the Indians:
- (a) could not possess any arms
 - (b) could not export any goods
 - (c) could be arrested without a warrant
 - (d) could be sent overseas on duty
- (x) Who organised the *Grand Delhi Durbar*?
- (a) Lord Curzon
 - (b) Lord Canning
 - (c) Lord Lytton
 - (d) Lord Dalhousie

- (xi) Tina is inspired by the methods of the Early Nationalists and wants to follow them. She notices that the road leading to her school is damaged and has many potholes. Which of the following methods is she MOST LIKELY to follow, to solve this problem?
- (a) Boycott the civic authorities
 - (b) Gather a group of students and protest
 - (c) Write a petition to the authorities highlighting the problem
 - (d) Block the entrance to the road
- (xii) Given below are the objectives of the Indian National Army. Identify the odd one out of the following:
- (a) To organise a provisional government of Free India
 - (b) Total mobilisation of Indian manpower and money
 - (c) Unity, faith and sacrifice
 - (d) To train and organise public opinion in the country
- (xiii) Tahir is preparing to give a speech about the *Sati system* in India. Which of the following Indian leader's contribution MUST he mention in his speech?
- (a) Raja Rammohan Roy
 - (b) W. C. Bonerjee
 - (c) Bipin Chandra Pal
 - (d) Jyotiba Phule
- (xiv) Which of the following is NOT a consequence of the Second World War?
- (a) Austria and Hungary became separate states
 - (b) Defeat of the Axis powers
 - (c) Beginning of the Cold War
 - (d) Formation of the United Nations
- (xv) Identify the principle of *Panchsheel*.
- (a) Mutual non-aggression
 - (b) Regulate armaments
 - (c) Take action against aggressor
 - (d) Recommend admission of members



By Milton Rawson Halladay

Which incident depicted in the above cartoon led to the beginning of the Second World War?

- (a) Hitler's policy of Imperialism
- (b) Hitler's attack on Poland
- (c) Hitler's annexation of Austria
- (d) Hitler's attack on Czechoslovakia

Question 2

- (i) Mention *any two* writs issued by the High Court. [2]
- (ii) Imagine you are an Indian ruler who has signed the *Subsidiary Alliance*. Mention *any two* conditions of this agreement which will affect you. [2]
- (iii) Mention *any two* causes of the Quit India Movement. [2]
- (iv) In which year did the *Surat Split* happen? What was the result of this split? [2]
- (v) Mention *any two* common ideologies of Fascism and Nazism. [2]
- (vi) Name the two cities of Japan which were bombed by America in the year 1945. [2]
- (vii) Read the given news carefully and answer the question that follows: [2]

Govt's power to promulgate, repromulgate Ordinances — why and how

An Ordinance "shall have the same force and effect as an Act of Parliament". But the government is required to bring an Ordinance before Parliament for ratification — and failure to do so will lead to its lapsing "at the expiration of six weeks from the reassembly of Parliament".

The Indian Express – May 25, 2023

Mention *any two* points regarding an ordinance that can be deduced from the above news.

PART II

SECTION A (20 Marks)

(Attempt any two questions from this Section.)

Question 3

The Union Parliament is the supreme legislative body in the country. With reference to the Indian Parliament answer the following questions:

- (i) *The Rajya Sabha is called a Permanent House.* Explain this statement. [3]
- (ii) Explain the composition of the Rajya Sabha. [3]
- (iii) Mention *any two exclusive powers* of the Lok Sabha and *two powers exclusive* to the Rajya Sabha. [4]

Question 4

The Council of Ministers headed by the Prime Minister aids and advises the President. In this context, answer the following questions:

- (i) Mention *any three points* to distinguish between the Council of Ministers and the Cabinet. [3]
- (ii) Who appoints the Cabinet Ministers? Mention *any two administrative powers* of the Cabinet. [3]
- (iii) *The President is the nominal head of the Indian Union.* Mention any four functions of the Prime Minister with reference to the President. [4]

Question 5

The judiciary is the system of courts that interprets and guards the Indian Constitution. With reference to the Supreme Court of India, answer the following:

- (i) What is the composition of the Supreme Court? Why is it called the *Court of Record?* [3]
- (ii) Explain the power of *Judicial Review.* [3]
- (iii) What is meant by the term *Original Jurisdiction?* Mention *any three cases* which come under this jurisdiction. [4]

SECTION B (30 Marks)

(Attempt any three questions from this Section.)

Question 6

The Revolt of 1857 was the beginning of the independence struggle against the colonial rule of the British. With reference to the consequences of the Revolt, answer the following:

- (i) Mention *any three* changes made in the administration with the end of the Company's Rule. [3]
- (ii) State *any three* policies promised to Indians in Queen Victoria's Proclamation. [3]
- (iii) Mention *any four* changes made in the army after the Revolt. [4]

Question 7

The Indian National Movement is divided into three phases. With reference to the *Second Phase of the Indian National Movement*, answer the following questions:

- (i) Who partitioned Bengal? Mention *any two* points to explain the perspective of the Nationalists regarding the *actual motive* behind the decision of Partition. [3]
- (ii) What was the objective of the *Assertive Nationalists*? Mention *any two* contributions of Bal Gangadhar Tilak. [3]
- (iii) In which year was the Muslim League formed? Mention *any three* objectives of the Muslim League. [4]

Question 8

Look at the picture given and answer the following questions:



- (i) Name the Viceroy who announced the plan for smooth transfer of power. Mention [3]
any two clauses of his plan with reference to the *Princely States*.
- (ii) Mention *any three* reasons for the acceptance of his plan by the Congress. [3]
- (iii) Mention *any four* provisions of the *Indian Independence Act* of 1947. [4]

Question 9

The final act of the long-drawn-out negotiations took place at Versailles on Saturday afternoon, and to-day Germany and the Allies – always with the exception of America – are at peace. Peace is a blessed word, and both the word and the fact are welcome to-day. So far as Germany is concerned there is for the present an end of strife, and at least a formal return to the decent relations of civilised states.

Editorial: Peace in force (12 January 1920)

The Guardian

- (i) Mention *any three* causes of the World War which ended with the signing of the [3]
 treaty being discussed in the passage above.
- (ii) Name the organization which was established in 1920 to maintain peace after this [3]
 war. Mention *any two* of its objectives.
- (iii) Mention *any four* clauses of the Treaty which affected Germany. [4]

Question 10

Both the United Nations Organisation and the Non-Aligned Movement aim to achieve international peace and security. In this context, answer the following:

- (i) Mention *any three* functions of the Security Council. [3]
- (ii) Mention *any three* functions of the World Health Organisation. [3]
- (iii) Name *any two* founders of the Non-Aligned Movement. Mention any two of its [4]
 objectives.

MATHEMATICS

Maximum Marks: 80

Time allowed: Two and half hours

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt all questions from Section A and any four questions from Section B.

All working, including rough work, must be clearly shown, and must be done on the same sheet as the rest of the answer.

Omission of essential working will result in loss of marks.

The intended marks for questions or parts of questions are given in brackets []

Mathematical tables and graph papers are to be provided by the school.

SECTION A (40 Marks)

(Attempt all questions from this Section.)

Question 1

Choose the correct answers to the questions from the given options.

[15]

(Do not copy the questions, write the correct answers only.)

- (i) For an Intra-state sale, the CGST paid by a dealer to the Central government is ₹ 120. If the marked price of the article is ₹ 2000, the rate of GST is:
- (a) 6%
 - (b) 10%
 - (c) 12%
 - (d) 16.67%

This paper consists of 12 printed pages.

(ii) What must be subtracted from the polynomial $x^3 + x^2 - 2x + 1$, so that the result is exactly divisible by $(x - 3)$?

(a) -31

(b) -30

(c) 30

(d) 31

(iii) The roots of the quadratic equation $px^2 - qx + r = 0$ are real and equal if:

(a) $p^2 = 4qr$

(b) $q^2 = 4pr$

(c) $-q^2 = 4pr$

(d) $p^2 > 4qr$

(iv) If matrix $A = \begin{bmatrix} 2 & 2 \\ 0 & 2 \end{bmatrix}$ and $A^2 = \begin{bmatrix} 4 & x \\ 0 & 4 \end{bmatrix}$, then the value of x is:

(a) 2

(b) 4

(c) 8

(d) 10

(v) The median of the following observations arranged in ascending order is 64.
Find the value of x : ~~to 2 d.p.~~

$$27, 31, 46, 52, x, x+4, 71, 79, 85, 90$$

(a) 60

(b) 61

(c) 62

(d) 66

(vi) Points A (x, y) , B $(3, -2)$ and C $(4, -5)$ are collinear. The value of y in terms of x is:

(a) $3x - 11$

(b) $11 - 3x$

(c) $3x - 7$

(d) $7 - 3x$

- (vii) The given table shows the distance covered and the time taken by a train moving at a uniform speed along a straight track.

Distance (in m)	60	90	y
Time (in sec)	2	x	5

The values of x and y are:

(a) $x = 4, y = 150$

(b) $x = 3, y = 100$

(c) $x = 4, y = 100$

(d) $x = 3, y = 150$

- (viii) The 7th term of the given Arithmetic Progression (A.P.):

$$\frac{1}{a}, \left(\frac{1}{a} + 1\right), \left(\frac{1}{a} + 2\right) \dots \text{is:}$$

(a) $\left(\frac{1}{a} + 6\right)$

(b) $\left(\frac{1}{a} + 7\right)$

(c) $\left(\frac{1}{a} + 8\right)$

(d) $\left(\frac{1}{a} + 7^7\right)$

- (ix) The sum invested to purchase 15 shares of a company of nominal value ₹ 75 available at a discount of 20% is:

(a) ₹ 60

(b) ₹ 90

(c) ₹ 1350

(d) ₹ 900

- (x) The circumcentre of a triangle is the point which is:

(a) at equal distance from the three sides of the triangle.

(b) at equal distance from the three vertices of the triangle.

(c) the point of intersection of the three medians.

(d) the point of intersection of the three altitudes of the triangle.

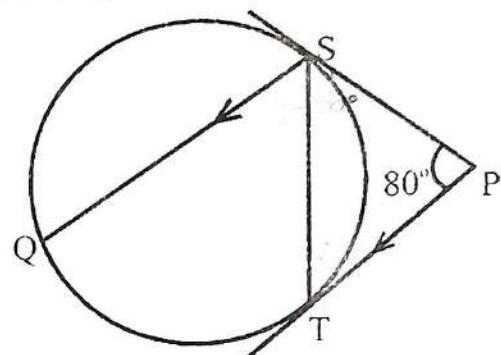
- (xi) Statement 1: $\sin^2 \theta + \cos^2 \theta = 1$
 Statement 2: $\operatorname{cosec}^2 \theta + \cot^2 \theta = 1$

Which of the following is valid?

- (a) only 1
- (b) only 2
- (c) both 1 and 2
- (d) neither 1 nor 2

- (xii) In the given diagram, PS and PT are the tangents to the circle. $SQ \parallel PT$ and $\angle SPT = 80^\circ$. The value of $\angle QST$ is:

- (a) 140°
- (b) 90°
- (c) 80°
- (d) 50°



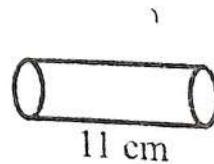
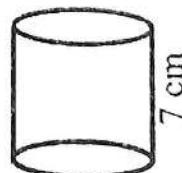
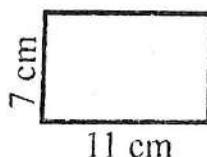
- (xiii) **Assertion (A):** A die is thrown once and the probability of getting an even number is $\frac{2}{3}$.

Reason (R): The sample space for even numbers on a die is $\{2, 4, 6\}$

- (a) A is true, R is false.
- (b) A is false, R is true.
- (c) Both A and R are true.
- (d) Both A and R are false.

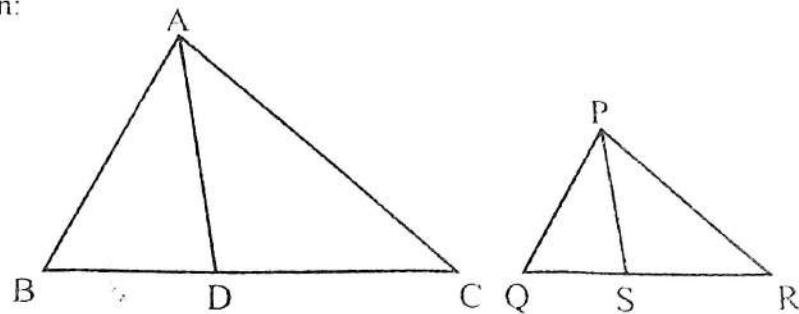
- (xiv) A rectangular sheet of paper of size $11 \text{ cm} \times 7 \text{ cm}$ is first rotated about the side **11 cm** and then about the side **7 cm** to form a cylinder, as shown in the diagram. The ratio of their curved surface areas is:

- (a) $1 : 1$
- (b) $7 : 11$
- (c) $11 : 7$
- (d) $\frac{11\pi}{7} : \frac{7\pi}{11}$



- (xv) In the given diagram, $\triangle ABC \sim \triangle PQR$. If AD and PS are bisectors of $\angle BAC$ and $\angle QPR$ respectively then:

- (a) $\triangle ABC \sim \triangle PQS$
- (b) $\triangle ABD \sim \triangle PQS$
- (c) $\triangle ABD \sim \triangle PSR$
- (d) $\triangle ABC \sim \triangle PSR$



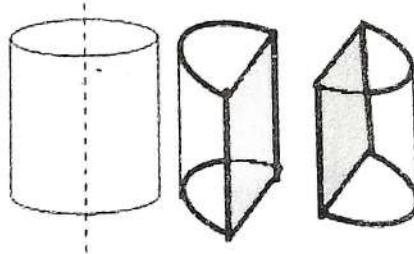
Question 2

(i) $A = \begin{bmatrix} x & 0 \\ 1 & 1 \end{bmatrix}, B = \begin{bmatrix} 4 & 0 \\ y & 1 \end{bmatrix}$ and $C = \begin{bmatrix} 4 & 0 \\ x & 1 \end{bmatrix}$ [4]

Find the values of x and y , if $AB = C$.

- (ii) A solid metallic cylinder is cut into two identical halves along its height (as shown in the diagram). The diameter of the cylinder is 7 cm and the height is 10 cm. Find:
- (a) The total surface area (both the halves).
 - (b) The total cost of painting the two halves at the rate of ₹ 30 per cm^2

$(\text{Use } \pi = \frac{22}{7})$



- (iii) 15, 30, 60, 120... are in G.P. (Geometric Progression). [4]

- (a) Find the n^{th} term of this G.P. in terms of n .
- (b) How many terms of the above G.P. will give the sum 945?

Question 3

(i) Factorize: $\sin^3 \theta + \cos^3 \theta$ [4]

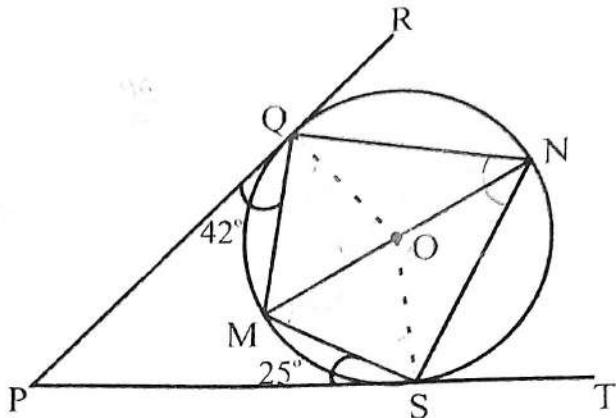
Hence, prove the following identity:

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

- (ii) In the given diagram, O is the centre of the circle. PR and PT are two tangents drawn from the external point P and touching the circle at Q and S respectively. MN is a diameter of the circle. Given $\angle PQM = 42^\circ$ and $\angle PSM = 25^\circ$. [4]

Find:

- (a) $\angle OQM$
- (b) $\angle QNS$
- (c) $\angle QOS$
- (d) $\angle QMS$



- (iii) Use graph sheet for this question. Take 2 cm = 1 unit along the axes. [5]

- (a) Plot A(0, 3), B(2, 1) and C(4, -1).
- (b) Reflect point B and C in y -axis and name their images as B' and C' respectively. Plot and write coordinates of the points B' and C' .
- (c) Reflect point A in the line BB' and name its images as A' .
- (d) Plot and write coordinates of point A' .
- (e) Join the points ABA'B' and give the geometrical name of the closed figure so formed.

SECTION B (40 Marks)

(Attempt any four questions from this Section.)

Question 4

- (i) Suresh has a recurring deposit account in a bank. He deposits ₹ 2000 per month and the bank pays interest at the rate of 8% per annum. If he gets ₹ 1040 as interest at the time of maturity, find in years total time for which the account was held. [3]
- (ii) The following table gives the duration of movies in minutes.

Duration (in minutes)	100 – 110	110 – 120	120 – 130	130 – 140	140 – 150	150 – 160
No. of movies	5	10	17	8	6	4

* Using step – deviation method, find the mean duration of the movies.

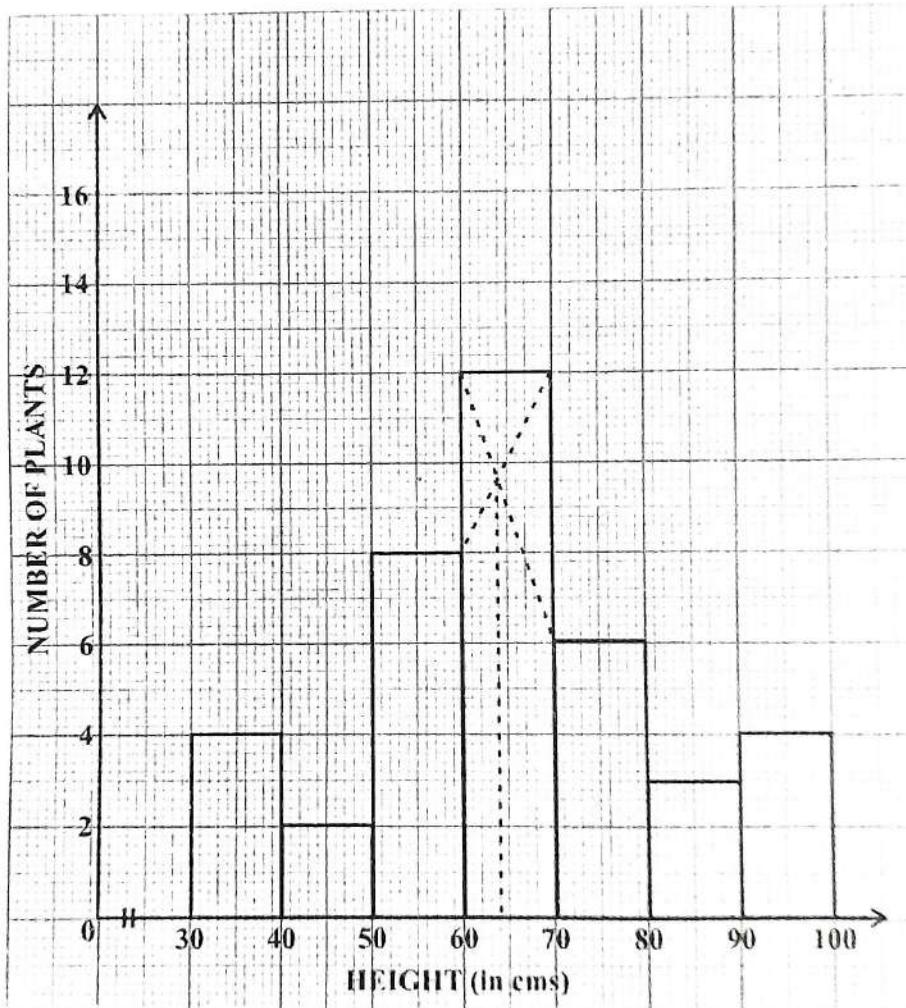
(iii) If $\frac{(a+b)^3}{(a-b)^3} = \frac{64}{27}$

(a) Find $\frac{a+b}{a-b}$

(b) Hence using properties of proportion, find $a : b$.

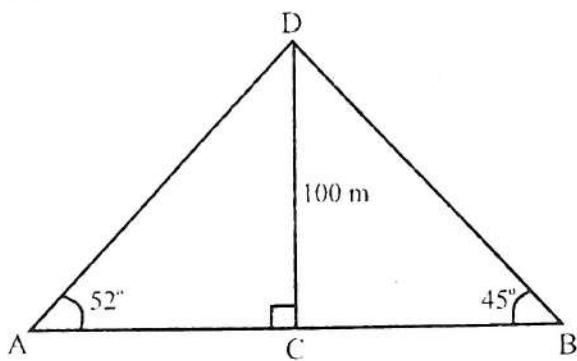
Question 5

- (i) The given graph with a histogram represents the number of plants of different heights grown in a school campus. Study the graph carefully and answer the following questions: [5]



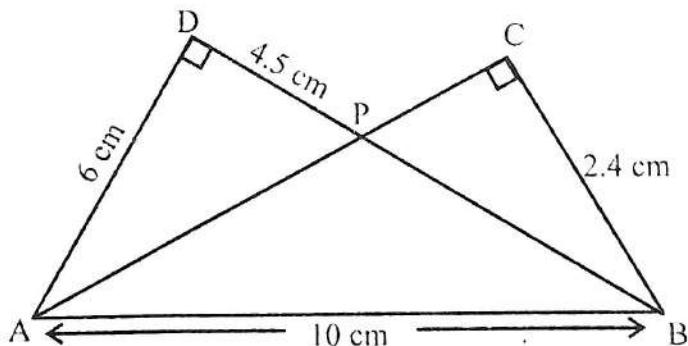
- (a) Make a frequency table with respect to the class boundaries and their corresponding frequencies.
- (b) State the modal class.
- (c) Identify and note down the mode of the distribution.
- (d) Find the number of plants whose height range is between 80 cm to 90 cm.

- (ii) The angle of elevation of the top of a 100 m high tree from two points A and B on the opposite side of the tree are 52° and 45° respectively. Find the distance AB, to the nearest metre.



Question 6

- (i) Solve the following quadratic equation for x and give your answer correct to three significant figures: $2x^2 - 10x + 5 = 0$ [3]
(Use mathematical tables if necessary)
- (ii) The n^{th} term of an Arithmetic Progression (A.P.) is given by the relation $T_n = 6(7 - n)$.
 Find:
 (a) its first term and common difference
 (b) sum of its first 25 terms
- (iii) In the given diagram $\triangle ADB$ and $\triangle ACB$ are two right angled triangles with $\angle ADB = \angle BCA = 90^\circ$. If $AB = 10 \text{ cm}$, $AD = 6 \text{ cm}$, $BC = 2.4 \text{ cm}$ and $DP = 4.5 \text{ cm}$ [4]



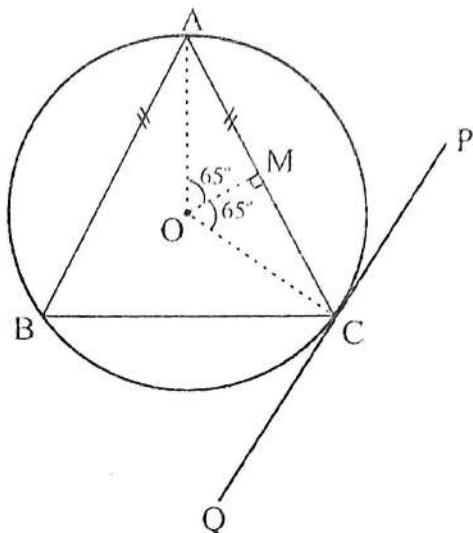
- (a) Prove that $\triangle APD \sim \triangle BPC$
 (b) Find the length of BD and PB
 (c) Hence, find the length of PA
 (d) Find area $\triangle APD$: area $\triangle BPC$

Question 7

- (i) In the given diagram, an isosceles $\triangle ABC$ is inscribed in a circle with centre O. [3] PQ is a tangent to the circle at C. OM is perpendicular to chord AC and $\angle COM = 65^\circ$.

Find:

- (a) $\angle ABC$
- (b) $\angle BAC$
- (c) $\angle BCQ$

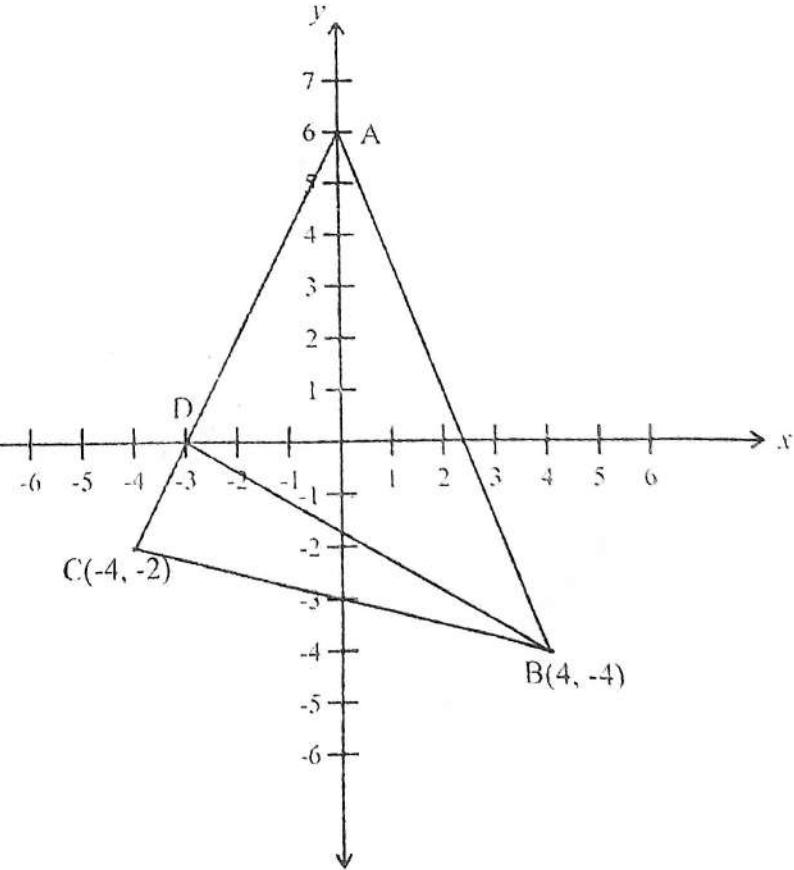


- (ii) Solve the following inequation, write down the solution set and represent it on the real number line. [3]

$$-3 + x \leq \frac{7x}{2} + 2 < 8 + 2x, x \in I$$

- (iii) In the given diagram, ABC is a triangle, where B(4, -4) and C(-4, -2). D is a point on AC. [4]

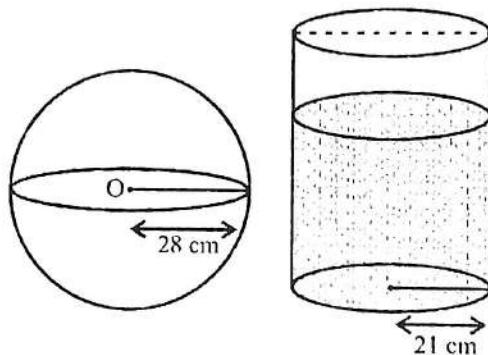
- (a) Write down the coordinates of A and D.
- (b) Find the coordinates of the centroid of $\triangle ABC$.
- (c) If D divides AC in the ratio $k : 1$, find the value of k .
- (d) Find the equation of the line BD.



Question 8

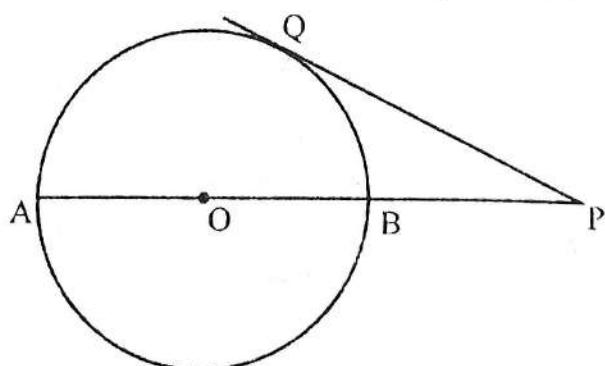
- (i) The polynomial $3x^3 + 8x^2 - 15x + k$ has $(x - 1)$ as a factor. Find the value of k . Hence factorize the resulting polynomial completely. [3]
- (ii) The following letters **A, D, M, N, O, S, U, Y** of the English alphabet are written on separate cards and put in a box. The cards are well shuffled and one card is drawn at random. What is the probability that the card drawn is a letter of the word, [3]
- MONDAY?
 - which does not appear in MONDAY?
 - which appears both in SUNDAY and MONDAY?
- (iii) Oil is stored in a spherical vessel occupying $\frac{3}{4}$ of its full capacity. Radius of this spherical vessel is **28 cm**. This oil is then poured into a cylindrical vessel with a radius of **21 cm**. Find the height of the oil in the cylindrical vessel (**correct to the nearest cm**). [4]

Take $\pi = \frac{22}{7}$



Question 9

- (i) The figure shows a circle of radius 9 cm with O as the centre. The diameter AB produced meets the tangent PQ at P. If PA = 24 cm, find the length of tangent PQ. [3]



- (ii) Mr. Gupta invested ₹ 33000 in buying ₹ 100 shares of a company at 10% premium. The dividend declared by the company is 12%. Find: [3]
- the number of shares purchased by him. Ans^4
 - his annual dividend.
- (iii) A life insurance agent found the following data for distribution of ages of 100 policy holders: [4]

Age in years	Policy Holders (frequency)	Cumulative frequency
20 – 25	2	2
25 – 30	4	6
30 – 35	12	18
35 – 40	20	38
40 – 45	28	66
45 – 50	22	88
50 – 55	8	96
55 – 60	4	100

On a graph sheet draw an ogive using the given data. Take 2 cm = 5 years along one axis and 2 cm = 10 policy holders along the other axis. Use your graph to find:

- The median age.
- Number of policy holders whose age is above 52 years.

Question 10

- (i) Rohan bought the following eatables for his friends : [3]

Soham Sweet Mart : Bill				
S. No.	Item	Price	Quantity	Rate of GST
1	Laddu	₹ 500 per kg	2 kg	5%
2	Pastries	₹ 100 per piece	12 pieces	18%

Calculate :

- Total GST paid.
- Total bill amount including GST.

- (ii) (a) If the lines $kx - y + 4 = 0$ and $2y = 6x + 7$ are perpendicular to each other, find the value of k . [3]
- (b) Find the equation of a line parallel to $2y = 6x + 7$ and passing through $(-1, 1)$
- (iii) Use ruler and compass to answer this question. Construct $\angle ABC = 90^\circ$, where $AB = 6 \text{ cm}$, $BC = 8 \text{ cm}$. [4]
- (a) Construct the locus of points equidistant from B and C.
- (b) Construct the locus of points equidistant from A and B.
- (c) Mark the point which satisfies both the conditions (a) and (b) as O. Construct the locus of points keeping a fixed distance OA from the fixed point O.
- (d) Construct the locus of points which are equidistant from BA and BC.

PHYSICS

(SCIENCE PAPER 1)

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Section A is compulsory. Attempt any four questions from Section B.

The intended marks for questions or parts of questions are given in brackets [].

SECTION A (40 Marks)

(Attempt all questions from this Section.)

Question 1

Choose the correct answers to the questions from the given options.

[15]

(Do not copy the questions, write the correct answers only.)

(i) When a bell fixed on a cycle rings, then the energy conversion that takes place is:

- (a) gravitational potential energy to sound energy
- (b) kinetic energy to sound energy
- (c) sound energy to electrical energy
- (d) sound energy to mechanical energy

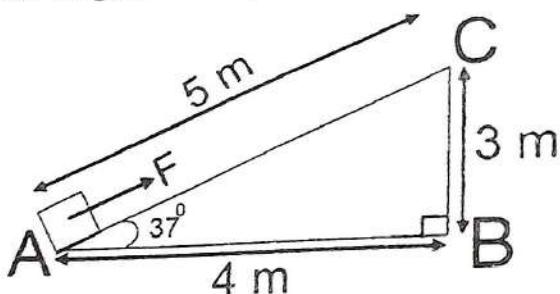
(ii) A door lock is opened by turning the lever (handle) of length 0.2 m. If the moment of force produced is 1 Nm, then the minimum force required is:

- (a) 5 N
- (b) 10 N
- (c) 20 N
- (d) 0.2 N

This Paper consists of 12 printed pages.

- (iii) A force 'F' moves a load from **A** to **C** as shown in the figure below. For the calculation of the work done, which of these lengths would you use as the displacement?

- (a) 3m
- (b) 4m
- (c) 5m
- (d) 7m



- (iv) A radioactive nucleus containing 128 nucleons emits a β^- particle. After β^- emission the number of nucleons present in the nucleus will be:

- (a) 128
- (b) 129
- (c) 124
- (d) 127

- (v) **Assertion (A):** Ultraviolet radiations are scattered more as compared to the microwave radiations.

Reason (R): Wavelength of ultraviolet radiation is more than the wavelength of microwave radiation.

- (a) Both A and R are true.
- (b) A is true but R is false.
- (c) A is false but R is true.
- (d) Both A and R are false.

- (vi) When the stem of vibrating tuning fork is pressed on a table, the tabletop starts vibrating. These vibrations are **definitely** an example of:

- (a) resonance
- (b) natural vibrations
- (c) forced vibrations
- (d) damped vibrations

(vii) Which of the following is a class III lever?

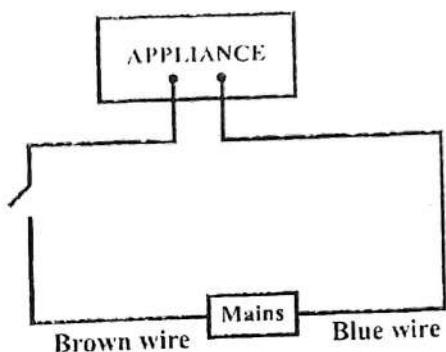
- (a) Pair of scissors
- (b) Wheelbarrow
- (c) Crowbar
- (d) Human forearm

(viii) The specific resistance of a conductor depends on its:

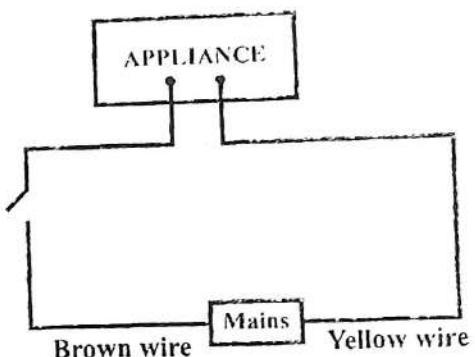
- (a) length
- (b) material
- (c) area of cross section
- (d) radius

(ix) Identify the option that displays the **correct wiring with correct colour code**:

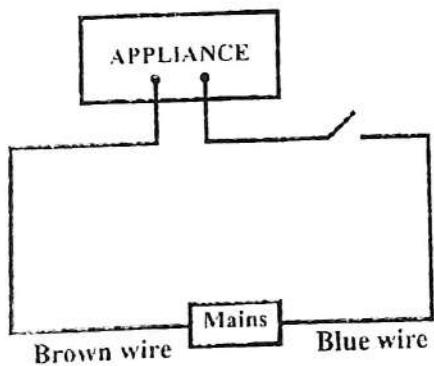
(a)



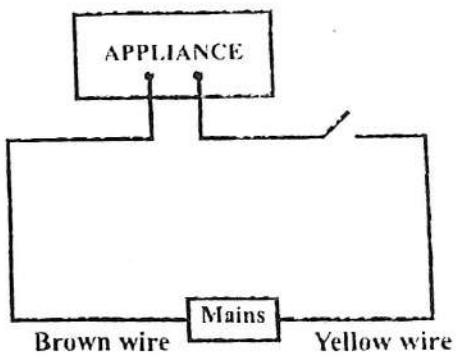
(b)



(c)



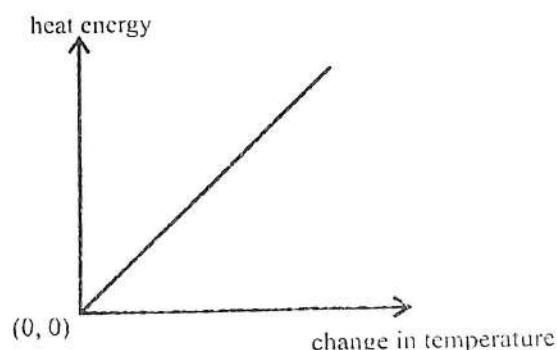
(d)



- (x) The potential difference between terminals of a cell in a closed electric circuit is:
- (a) terminal voltage
 - (b) electro motive force
 - (c) voltage drop
 - (d) none of these
- (xi) During melting of ice at 0°C the:
- (a) energy is released and temperature remains constant.
 - (b) energy is absorbed and temperature remains constant.
 - (c) energy is released and temperature decreases.
 - (d) energy is absorbed and temperature increases.
- (xii) Linear magnification(m) produced by a concave lens is:
- (a) $m < 1$
 - (b) $m > 1$
 - (c) $m = 1$
 - (d) $m = 2$
- (xiii) A radioactive element is placed in an evacuated chamber. Then the rate of **radioactive decay** will:
- (a) Decrease
 - (b) Increase
 - (c) Remain unchanged
 - (d) Depend on the surrounding temperature

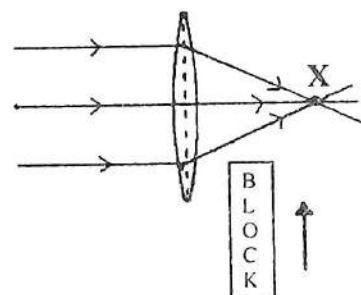
- (xiv) The graph given below shows heat energy supplied against change in temperature when no energy is lost to the surrounding. The slope of this graph will give:

- (a) Specific heat capacity
- (b) Latent heat of fusion
- (c) Latent heat of vaporization
- (d) Heat capacity



- (xv) A block of glass is pushed into the path of the light as shown below. Then the converging point X will:

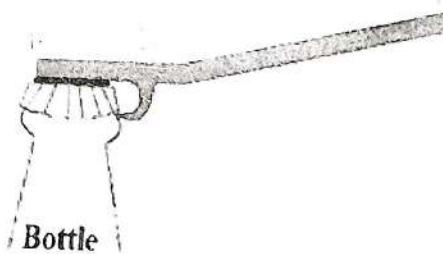
- (a) Move away from the slab
- (b) Move towards the slab
- (c) Not shift
- (d) Move towards the left side of the lens



Question 2

- (i) (a) In the following atoms, which one is a radioisotope? Give *one* use of this isotope. [3]
 O^{16} , C^{14} , N^{14} , He^4

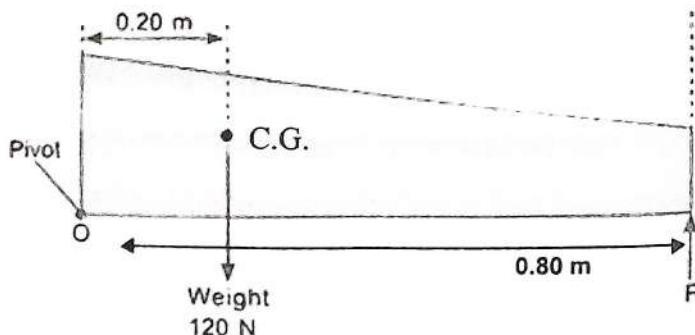
- (b) Name the class of the lever shown in the picture below:



- (ii) Fill in the blanks: [2]

- (a) When a stone tied to a string is rotated in a horizontal plane, the tension in the string provides _____ force necessary for circular motion.
- (b) Work done by this force at any instant is _____.

- (iii) A non uniform beam of weight 120 N pivoted at one end is shown in the diagram below. [2]
Calculate the value of F to keep the beam in equilibrium.

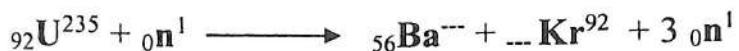


- (iv) Meera chose to use a block and tackle system of '9' pulleys instead of a single movable pulley to lift a heavy load. [2]
- What is the advantage of using a block and tackle system over a single movable pulley?
 - Why should she connect more number of pulleys in the upper fixed block?
- (v) Sumit does 600 J of work in 10 min and Amit does 300 J of work in 20 min. Calculate [2] the ratio of the powers delivered by them.
- (vi) 5 bulbs are connected in series in a room. One bulb is fused. It is removed and remaining 4 bulbs are again connected in series to the same circuit. What will be the effect on the following physical quantities? (Increases, Decreases, Remain Same) [2]
- Resistance
 - Intensity of light
- (vii) Rohan conducted experiments on echo in different media. He observed that a minimum distance of ' x ' meters is required for the echo to be heard in oxygen and ' y ' meters in benzene. Compare ' x ' and ' y '. Justify your answer.
Speed of sound in oxygen: 340 ms^{-1}
Speed of sound in benzene: 200 ms^{-1}

Question 3

- (i) (a) In a reading glass what is the position of the object with respect to the convex lens used? [2]
- (b) Why can we **not** use concave lens for the same purpose?

- (ii) A fuse is rated 5 A. Can it be used with a geyser rated 1540 W, 220 V. Write Yes or No. Give supporting calculations to justify your answer. [2]
- (iii) State two factors affecting the speed of rotation of the coil in a D.C. motor. [2]
- (iv) How much heat is required to convert 500 g of ice at 0°C to water at 0°C? The latent heat of fusion of ice is 330 Jg⁻¹. [2]
- (v) Copy and complete the nuclear reaction by filling in the blanks. [2]



SECTION B (40 Marks)

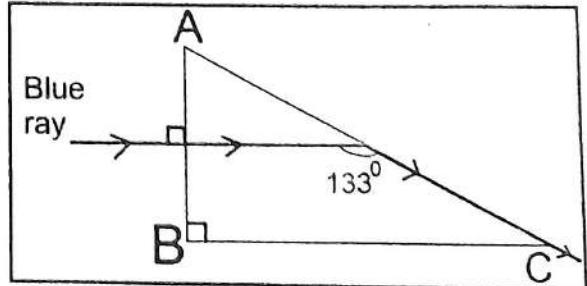
(Attempt any four questions from this Section.)

Question 4

- (i) The image of a candle flame placed at a distance of 36 cm from a spherical lens, is formed on a screen placed at a distance of 72 cm from the lens. Calculate the focal length of the lens and its power. [3]
- (ii) Below is an incomplete table showing the arrangement of electromagnetic spectrum in the increasing order of their wavelength. Complete the table. [3]
- | Gamma ray | X – ray | UV rays | Visible rays | Infrared | A | Radio waves |
|-----------|---------|---------|--------------|----------|---|-------------|
|-----------|---------|---------|--------------|----------|---|-------------|
- (a) Identify the radiation A.
- (b) Name the radiation used to detect fracture in bones.
- (c) Name one property common to both A and Radio waves.

- (iii) (a) Why do we use red colour as a danger signal on the top of a skyscraper? [4]
- (b) The diagram below shows the path of a blue ray through the prism:

- Calculate the critical angle of the material of the prism for blue colour.
- What is the measure of the angle of this prism (A)?
- Which colour should replace the blue ray, for the ray to undergo Total Internal Reflection?



Question 5

(i) ✓

- (a) Refractive index of glass with respect to water is $\frac{9}{8}$.

Find the refractive index of water with respect to glass.

- (b) Name the principle used to find the value in part (a).

- (c) If we change the temperature of water, then will the ratio $\frac{9}{8}$ remain the same? Write Yes or No.

(ii) ✓

Light travels a distance of ' $10x$ ' units in time ' t_1 ' in vacuum and it travels a distance of ' x ' units in time ' t_2 ' in a denser medium. Using this information answer the question that follows:

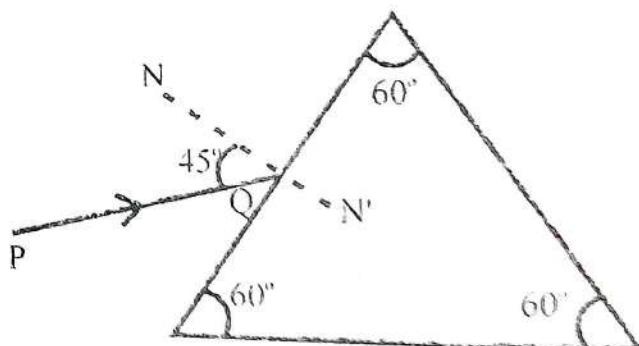
- (a) 'Light covers a distance of ' $20x$ ' units in time ' t_1 ' in diamond.' State true or false.
- (b) Calculate the refractive index of the medium in terms of ' t_1 ' and ' t_2 '.

(iii) ✓

A monochromatic ray of light is incident on an equilateral prism placed at minimum deviation position with an angle of incidence 45° as shown in the diagram.

- (a) Copy the diagram and complete the path of the ray PQ.

- (b) State two factors on which the angle of deviation depends.



Question 6

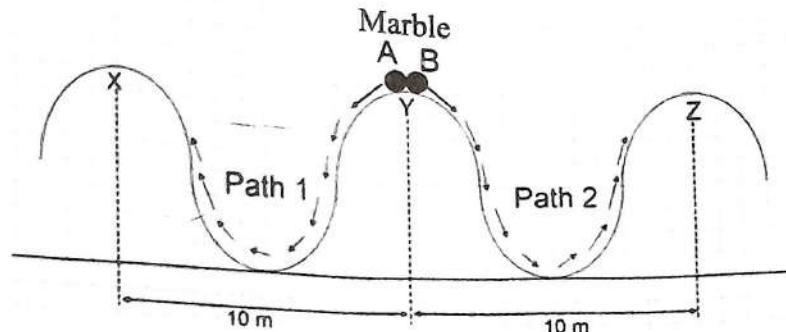
(iv) ✓

- (a) Define Centre of Gravity.

- (b) A hollow ice cream cone has height 6 cm.

1. Where is the position of its centre of gravity from the broad base?

2. Will its position change when it is filled completely with honey? Write Yes or No.



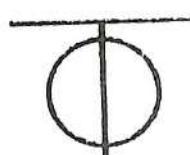
Two identical marbles A and B are rolled down along Path 1 and Path 2 respectively. Path 1 is **frictionless** and Path 2 is **rough**.

- Which marble will **surely** reach the next peak?
- Along which path/s the **mechanical energy** will be conserved?
- Along which path/s is the law of **conservation of energy** obeyed?

(iii) Given are two pulleys.

[4]

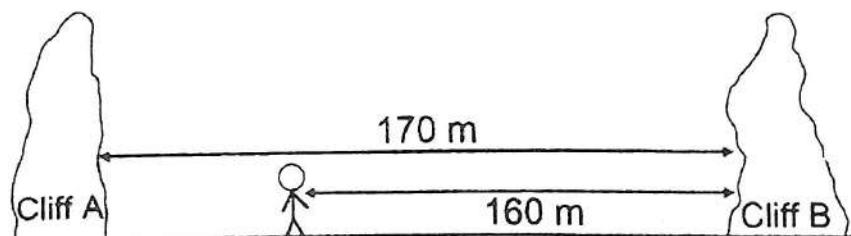
- Copy and complete the labelled diagram connecting the two pulleys with a tackle to obtain Velocity Ratio = 2.
- If Load = 48 kgf and efficiency is 80% then calculate:
 - Mechanical Advantage.
 - Effort needed to lift the load.



Question 7

(i) (a) Name the waves used in SONAR.
 (b)

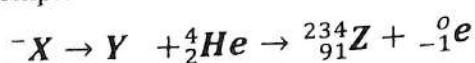
[3]



In the above diagram Lata stands between two cliffs and claps her hands. Determine the time taken by her to hear the **first echo**.

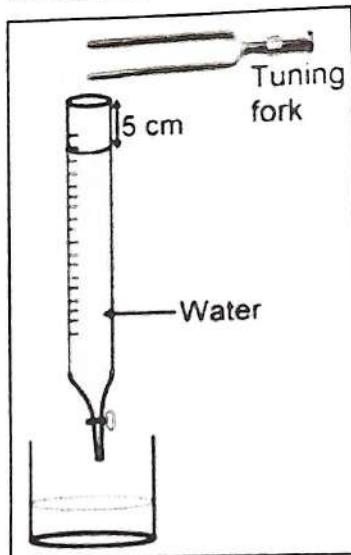
Speed of sound in air 320 ms^{-1} .

- (ii) (a) Complete the following radioactive reaction:



- (b) Uranium is available in two forms U-235 and U-238. Which of the two isotopes of Uranium is **more** fissionable?

- (iii) In the given diagram, a vibrating tuning fork is kept near the mouth of a burette filled with water. The length of the air column is adjusted by opening the tap of the burette. At a length of 5 cm of the air column, a **loud sound** is heard. [4]



- (a) Name the phenomenon illustrated by the above experiment.
 (b) Why is a loud sound heard at this particular length?
 (c) If the present tuning fork is replaced with a tuning fork of higher frequency, should the length of the air column increase or decrease to produce a **loud sound**? Give a reason.

Question 8

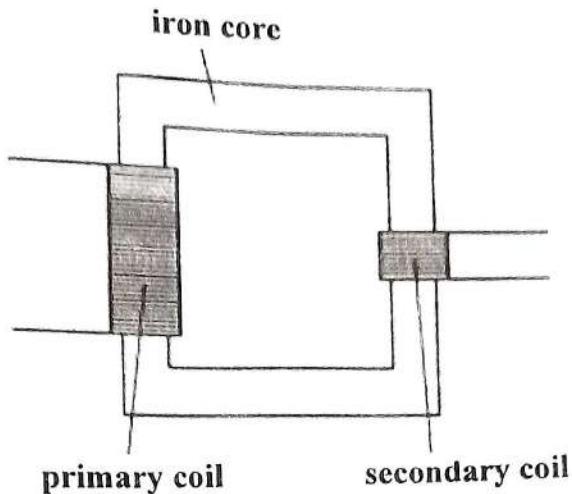
- (i) The voltage - current readings of a certain material are shown in the table given below: [3]

Voltage (V)	10 V	20 V	30 V
Current (I)	2 A	3 A	4 A

Study the table.

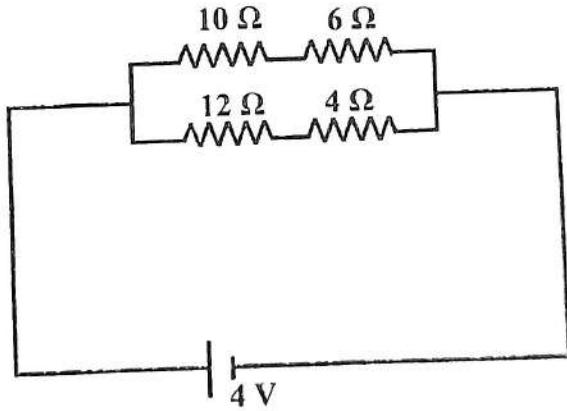
- (a) State whether the conductor used is ohmic or non-ohmic.
 (b) Justify your answer.
 (c) State Ohm's law.

- (ii) Below is the diagram of a transformer: [3]



- (a) Identify the type of transformer.
(b) In this type of transformer which of the wire is **thicker**, the primary or the secondary? Give a reason.

- (iii) Study the diagram: [4]



- (a) Calculate the total resistance of the circuit.
(b) Calculate the current drawn from the cell.
(c) State whether the current through $10\ \Omega$ resistor is greater than, less than or equal to the current through the $12\ \Omega$ resistor.

Question 9

[3]

- (i) 85 g of water at 30°C is cooled to 5°C by adding certain mass of ice. Find the mass of ice required.

[Specific heat capacity of water = $4.2 \text{ Jg}^{-1}\text{C}^{-1}$, Specific latent heat of fusion = 336 Jg^{-1}]

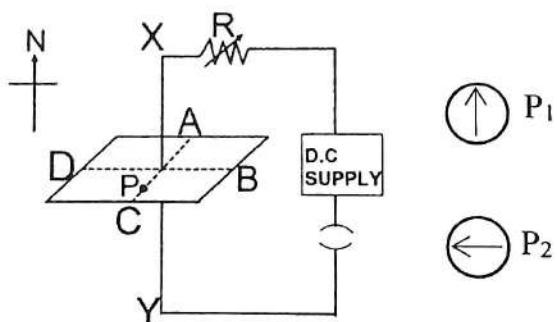
- (ii) (a) Why does it become pleasantly warm when the lakes start freezing? [3]

(b) Water freezes to form ice. What change would you expect in the average kinetic energy of the molecules?

(c) Which will contain more heat energy 1 g of ice at 0°C or 1 g water at 0°C ?

- (iii) (a) State one factor that affects the magnitude of induced current in an AC generator. [4]

(b) Given below is a circuit to study the magnetic effect of electric current. ABCD is a cardboard kept perpendicular to the conductor XY. A magnetic compass is placed at the point P of the cardboard. \mathbf{P}_1 and \mathbf{P}_2 are the positions of the magnetic compass, before and after passing a current through XY respectively.



1. Name the **rule** that is used to predict the direction of deflection of the magnetic compass.
2. State the direction of current in the conductor (X to Y or Y to X) when the circuit is complete.
3. If resistance R is increased, then what will be the effect on the magnetic lines of force around the conductor?