

TIME: 3 Hrs.

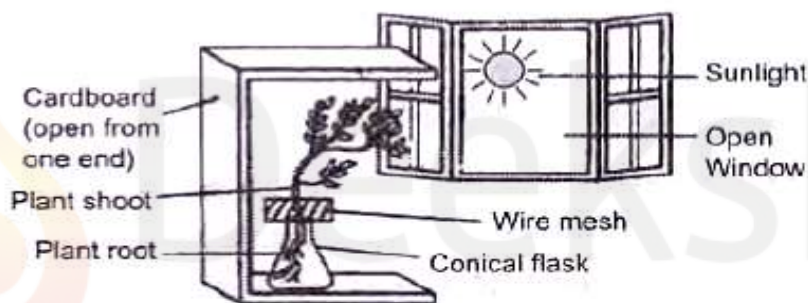
M.M.: 80

General Instructions:

1. The question paper comprises three sections – A, B and C. Attempt all the sections.
2. All questions are compulsory.
3. Internal choice is given in each section.
4. All questions in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.
5. All questions in Section B are three-mark, short-answer type questions. These are to be answered in about 50 - 60 words each.
6. All questions in Section C are five-mark, long-answer type questions. These are to be answered in about 80 – 90 words each.
7. This question paper consists of a total of 30 questions.

SECTION A

1. Observe the given figure and answer the following questions:



- i. Which type of Tropic Movement is shown by the shoot tip and roots in the given figure. 1
 - ii. Name the hormone responsible for this movement. 1
 - iii. Wilting of leaves in the plant is caused by which hormone? 1
2. 2(i) to 2(iii) are based on the paragraph and table given below. Study these and answer the questions that follows:

The metals and alloys have very low resistivity in the range of $10^{-8}\Omega\text{m}$ to $10^{-6}\Omega\text{m}$. They are good conductor of electricity. Insulators have resistivity of the order of 10^{12} to $10^{17}\Omega\text{m}$. Both the resistance and resistivity of a material vary with temperature.

- 2(i). Material A and B have a resistivity of $2.2 \times 10^{-8}\Omega\text{m}$ and $10 \times 10^8\Omega\text{m}$ respectively. What is the nature (conductor or Insulator) of A and B? 1

- 2(ii). What is the resistivity of an alloy of copper and nickel? 1

Material	Resistivity ($\Omega\text{ m}$)
Silver	1.60×10^{-8}
Copper	1.62×10^{-8}
Aluminium	2.63×10^{-8}
Tungsten	5.20×10^{-8}
Nickel	6.84×10^{-8}
Iron	10.0×10^{-8}
Chromium	12.9×10^{-8}
Mercury	94.0×10^{-8}
Manganese	1.84×10^{-6}
Constantan (alloy of Cu and Ni)	49×10^{-6}
Manganin (alloy of Cu, Mn and Ni)	44×10^{-6}
Nichrome (alloy of Ni, Cr, Mn and Fe)	100×10^{-6}
Glass	$10^{10} - 10^{14}$
Hard rubber	$10^{13} - 10^{16}$
Ebonite	$10^{15} - 10^{17}$
Diamond	$10^{12} - 10^{13}$
Paper (dry)	10^{12}

- 2(iii). How the resistivity of a material does changes with change in temperature. 1

3. **3(i) Assertion(A):** Li, Na and K forms a Dobereiner triads because the atomic mass of the middle element is roughly the average of the atomic mass of the other two elements. 1

Reason(R): Dobereiner arranged elements on the basis of increasing atomic number.

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

3(ii) . Assertion(A): Gas bubbles are observed when dilute hydrochloric acid is added to sodium carbonate. 1

Reason(R): Carbon dioxide is released in this reaction

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

4. 4a. Write any one advantage of Dams? 1

4b. Name any two conventional sources of energy? 1

5. During extraction of metals, electrolytic refining is used to obtain pure metals. Which material will be used as anode and cathode for refining of silver metal in this process? 1

- A) Anode: impure silver; Cathode: pure silver
- B) Anode: pure silver; Cathode: impure silver
- C) Anode: impure copper; Cathode: pure silver
- D) Anode: impure silver; Cathode: pure copper

OR

Given below are the steps for extraction of copper from its ore. Choose the correct sequence of its extraction.

i. Electrolytic refining; **ii.** Reduction of copper oxide with copper sulphide; **iii.** Roasting of copper sulphide **iv.** Enrichment of Ore

- A) i, ii, iii, iv
- B) iv, i, ii, iii
- C) iv, iii, ii, i
- D) iii, iv, ii, i

6. Which is not a feature of Mendeleev's periodic table? 1

- A) The vertical column are called groups and horizontal rows of element are called periods
- B) his table have gap for the elements not discovered at that time and named them as Eka element.
- C) when noble gases were discovered they could be placed in the a new group without disturbing the existing order.
- D) The element were arranged in increasing order of their atomic number in his table.

7. The correct sequence of rainbow formation is: 1

- A) Refraction, Dispersion, internal Reflections, Refraction
- B) Dispersion, Refraction, internal Reflections, Refraction
- C) Internal Reflections, Refraction, Dispersion, Refraction
- D) Refraction, internal Reflections, Refraction, Dispersion,

OR

In human eye the image of an object is formed at its

- A) Cornea
- B) Iris
- C) Pupil
- D) Retina

8. The device used for producing electric current is called 1
 A)Generator B) Galvanometer C)Ammeter D)Motor
9. The direction of magnetic field line around a straight current carrying conductor is given by 1
 A) Fleming's left hand rule B)Fleming's right hand rule
 C) Right hand thumb rule D)Both A & B
10. A typical solar cell generates a voltage of : 1
 A)0.5mV B)5v C)7 V D) 0.5V
11. Which is not a conventional method of water harvesting 1
 A)Digging of small pits and Lakes B)building small earthen dams
 C) Khadins D)Pumping used water back into the soil
12. which among the following is a formula of chloride of Lime(Bleaching Powder) 1
 A)CaOCl₂ B)NH₄Cl C)NaCl D)KCl
13. The correct statement regarding the universal indicator is: 1
 A)It is an indicator having pH=7 B)It gives blue color at pH=3
 C)It become colorless at pH=7 D)It gives orange color at pH=3
14. Select the correct match:

	Column I		Column II
(A)	Amoeba	(p)	Budding
(B)	Hydra	(q)	Regeneration
(C)	Planaria	(r)	Fission
(D)	Rhizopus	(s)	Fragmentation
(E)	Spirogyra	(t)	Spore formation

- A) A to r ; B to p ;C to q ;D to t ;E to s B) A to t; B to p ;C to q ; D to r ;E to s
 C) A to p ; B to r ;C to q ;D to t ;E to s D) A to t ;B to p ;C to q ;D to r ;E to s

OR

- Which of the following is not a part of the female reproductive system in human beings?
 A) Ovary B) Uterus C) Fallopian tube D)Vas deferens

OR

What is Speciation? Can geographical isolation be a major factor in the speciation of a self pollinating plant species? Explain in brief.

21. Rohan uses a convex lens to form a real and inverted image of a candle at a distance of 50 cm. Where the candle be placed in front of the convex lens if the image is equal to the size of the object? Also find the power of the lens. 3
22. A man can read the number of a distant bus clearly but he finds difficulty in reading a book. From which defect of eye he is suffering from? How this defect be corrected, explain with a suitable diagram? 3
23. A) What is an electric fuse? Should it be placed on neutral wire or on live wire? Justify your answer. 3
- B) Two circular coil P and Q are kept close to each other, of which coil P carries a electric current. If coil P is moved towards Q. Will some current be induced in coil Q? Name the device used to check the induced current and the phenomenon responsible for it.

OR

What is a Solenoid? Draw a diagram showing magnetic field lines around a current carrying Solenoid. On what factors the strength of magnetic field depends in a solenoid.

24. A) What are Decomposers? What will be the consequence of their absence in an ecosystem?
B) What are the advantages of cloth bags over plastic bags? 3

SECTION C

25. A. What are Ionic compound ? Show the formation of Magnesium Oxide. 5
B. Among Covalent and Ionic compound which will have higher melting and boiling point and why?
26. An organic compound A (C_2H_6O) is used in the preparation of tincture of Iodine. Upon reaction with $Alk.KMnO_4$ the compound A is gets oxidized to form another compound B ($C_2H_4O_2$). 5
- Identify A & B and write their structural formula.
 - Write chemical equation for the reaction which leads to the formation of B
 - Write two uses of compound B.

OR

- What are hydrocarbons? Give examples.
- Which among the following hydrocarbons will give substitution reaction?



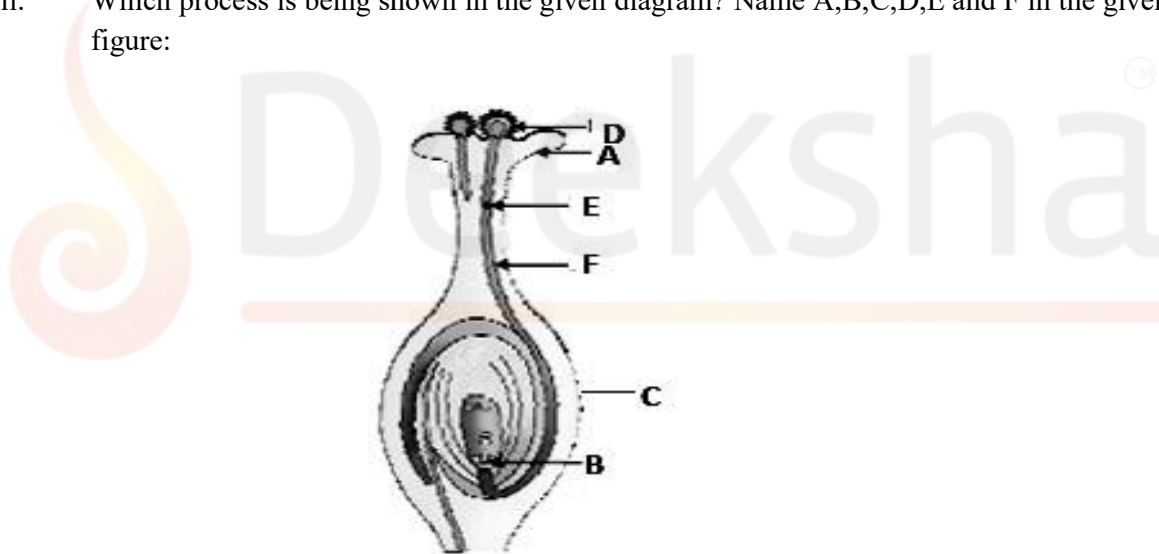
- iii. Identify the functional group in $\text{C}_3\text{H}_7\text{OH}$; $\text{C}_4\text{H}_9\text{CHO}$ hydrocarbons and write the formula of next member of these homologous series from which these belongs.
- iv. What happens when Coal is burnt in presence of oxygen? Write its chemical equation.

27. A) i. What is Excretion? Draw a well labeled diagram of Excretory system in Human. 5
ii. Name the functional unit of Kidney.
B) How do Plants excrete their waste?

28. i. Give two reasons why a married couple needs to adopt a contraceptive method? 5
ii. Explain in brief any three contraceptive methods used to control the size of human population.
iii. Which contraceptive method can help in prevention of STDs upto some extent.

OR

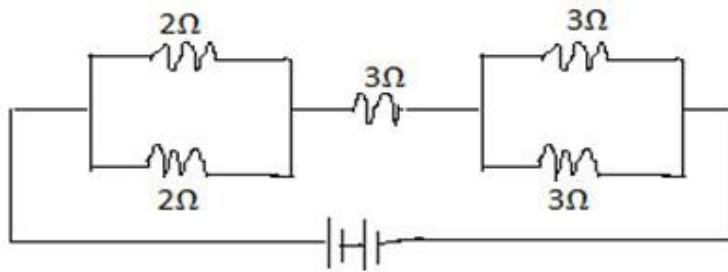
- i. Define Pollination.
- ii. Which process is being shown in the given diagram? Name A,B,C,D,E and F in the given figure:



29. A) A Student projects the image of a candle flame on a screen kept at 48 cm in front of a mirror by keeping the flame at a distance of 12 cm from its pole. 5
- i. Suggest the type of mirror he should use.
 - ii. Find the magnification of the image produced.
 - iii. How far is the image from its object? Draw a ray diagram to show the image formation in this case.
- B) The absolute Refractive Index of water is $\frac{3}{2}$ respectively. If the speed of light in vacuum is $3 \times 10^8 \text{ ms}^{-1}$. Calculate the speed of light in water.

30. A). Find the equivalent Resistance in the following circuit:

5



B) State Ohm's law. How do the length and cross section area of a conductor affects is resistance of a conductor changes when:

- i. Length is get half;
- ii. Radius of wire is doubled.

OR

- i. A copper wire of resistivity $1.63 \times 10^{-8} \Omega\text{m}$ has cross section area of $10.3 \times 10^{-4} \text{cm}^2$. Calculate the length of the wire required to make a 20Ω coil.
- ii. State Joule's law of heating. An electric iron of resistance 20Ω takes a current of 5A . Calculate the heat developed in 0.5min .

