

Four alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet. 10 × 1 = 10

1. Electronic configuration of an element is $1s^2 2s^2 2p^6 3s^1$. In modern periodic table this element belongs to
 - (A) 1st period
 - (B) 2nd period
 - (C) 3rd period
 - (D) 6th period.

2. If the time period of a wave is increased by four times then its frequency
 - (A) increases by 4 times
 - (B) decreases by 4 times
 - (C) increases by 2 times
 - (D) decreases by 2 times.

3. The disease caused by human papiloma virus is
 - (A) Birdflu
 - (B) Gonorrhoea
 - (C) Syphilis
 - (D) Genital warts.

4. At constant temperature if 'V' is the volume of certain mass of a gas under pressure 'P' then the relation between them is
- (A) $V \propto \frac{1}{P}$ (B) $P \propto \frac{1}{\sqrt{V}}$
- (C) $V = P$ (D) $V \propto P$.
5. Emitter segment in transistor is
- (A) lightly doped
- (B) moderately doped
- (C) heavily doped
- (D) a pure semiconductor.
6. The hormone deficiency in a person suffering from goitre is
- (A) Parathormone
- (B) Thyroxine
- (C) Insulin
- (D) Cortisone.
7. The electrolyte which dissociates partially in aqueous solution is
- (A) Hydrochloric acid
- (B) Copper sulphate
- (C) Sodium chloride
- (D) Acetic acid.

8. The type of waves used to detect vehicles crossing speed limit is

- (A) Radio waves
- (B) Ultraviolet waves
- (C) Ultrasonic waves
- (D) Audible sound waves.

9. The technique used to identify the genetic relationship is

- (A) cloning
- (B) DNA finger print technology
- (C) blood test
- (D) tissue culture.

10. The silicon compound used in the removal of hardness of water is

- (A) silicone
- (B) silicon carbide
- (C) zeolite
- (D) quartz.

11. The major characteristic in the evolution of stars is given in **Column-A**. Match them with the stages of star evolution given in **Column-B** and write the answers along with its letters : 4 × 1 = 4

Column - A**Column - B**

- | | |
|---|-------------------|
| (A) Outer layers of the star swell | (i) Protostar |
| (B) Aggregation of hydrogen gas at the centre | (ii) Steady state |
| (C) Outward radiation pressure is equal to the inward gravitational pull | (iii) Red giant |
| (D) The remnant of supernova explosion that has very high density and gravity | (iv) White dwarf |
| | (v) Pulsar |
| | (vi) Black hole |
| | (vii) Quasar |

Answer the following questions :

7 × 1 = 7

12. "When compared to detergents soaps are ecofriendly." Why ?
13. What is an alloy ?
14. When apical portion of the jowar plant is cut and removed, then the plant will die. Why ?
15. The motion of simple pendulum is an example for simple harmonic motion. Why ?

16. What is rate of diffusion ?
17. What is monohybrid cross ?
18. Workers should wear gas masks in glass industries. Why ?

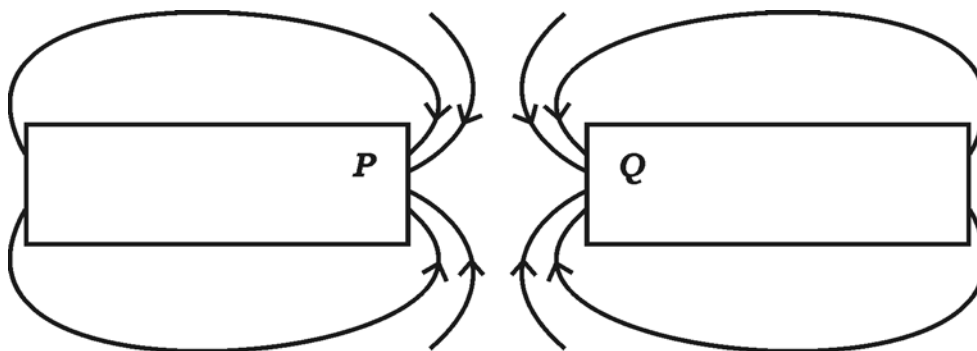
- I. *Four* alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet. 8 × 1 = 8

1. The type of reproduction found in Spirogyra is
 - (A) Budding
 - (B) Fragmentation
 - (C) Vegetative reproduction
 - (D) Spore formation.

2. Identify the correct electron dot structure of nitrogen molecule in the following :
 - (A) $\text{:N}::\text{N:}$
 - (B) $\text{:}\ddot{\text{N}}\cdot\cdot\ddot{\text{N}}\text{:}$
 - (C) $\cdot\ddot{\text{N}}::\ddot{\text{N}}\cdot$
 - (D) $\cdot\text{N}::\text{N}\cdot$

3. The sky as seen from the surface of the moon appears dark because,
 - (A) only a little of the blue and violet colours are scattered
 - (B) all the colours are absorbed by the atmosphere present in the moon
 - (C) all the colours are scattered
 - (D) atmospheric particles needed to scatter the light are not present.

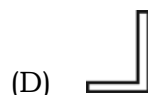
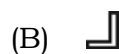
4. The atomic numbers of elements *A*, *B*, *C* and *D* are 3, 9, 4 and 8 respectively. Elements having metallic nature among these are
- (A) *B* and *D*
- (B) *A* and *B*
- (C) *A* and *C*
- (D) *B* and *C*.
5. Observe the diagram.



The magnetic poles represented by *P* and *Q* respectively are

- (A) south (*S*) and south (*S*)
- (B) north (*N*) and south (*S*)
- (C) north (*N*) and north (*N*)
- (D) south (*S*) and north (*N*).
6. The site of complete digestion of carbohydrates, proteins and fats is
- (A) stomach
- (B) large intestine
- (C) small intestine
- (D) liver.

7. The image of the English letter “L” in convex mirror looks like



8. The name and the molecular formula of the unsaturated hydrocarbon having general formula $C_n H_{2n}$ and containing 3 carbon atoms is

(A) propane, $C_3 H_8$

(B) Cyclopropane, $C_3 H_6$

(C) Propyne, $C_3 H_4$

(D) Propene, $C_3 H_6$

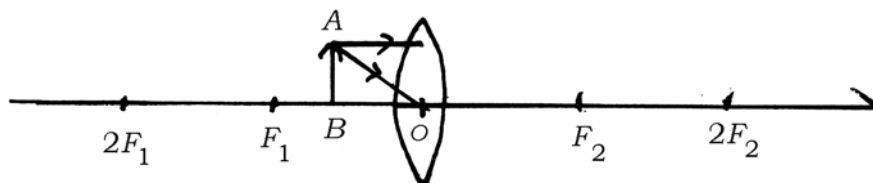
II. Answer the following questions.

$8 \times 1 = 8$

9. In the alpine meadows of the great Himalayan National Park, the practice of regular grazing by sheep was put to an end. What are the effects on the meadows due to this measure ?

10. What are amphoteric oxides ?

11. Observe the given incomplete diagram.



Complete the diagram by drawing refracted rays and show the image formed.

12. Can detergent be used to test hardness of water ? Give reason.
13. Name the poisonous gas produced due to incomplete combustion of fossil fuels.
14. A student sitting in the last bench has difficulty in reading the blackboard writing. Which is the defect of vision the student has ? How can it be corrected ?
15. Manufacturers of chips, flush the packets of chips with nitrogen gas. Why ?
16. Suggest any two measures to avoid overloading in domestic circuits.