

CBT X SCIENCE (DECEMBER)

Q1 Choose the incorrect statement from the following regarding magnetic lines of field

- (a) The direction of magnetic field at a point is taken to be the direction in which the north pole of a magnetic compass needle points
- (b) Magnetic field lines are closed curves
- (c) If magnetic field lines are parallel and equidistant, they represent zero field strength
- (d) Relative strength of magnetic field is shown by the degree of closeness of the field lines

Answer : (c) If magnetic field lines are parallel and equidistant, they represent zero field strength

Feedback: If the magnetic field lines are parallel and equidistant, they represent a uniform magnetic field and not a zero field strength. Therefore option C is the incorrect statement.

Q.2 The strength of magnetic field inside a long current carrying straight solenoid is

- (a) more at the ends than at the centre
- (b) minimum in the middle
- (c) same at all points
- (d) found to increase from one end to the other

Answer : (c) same at all points

Feedback : The magnetic field inside a solenoid is proportional to both the applied current and the number of turns per unit length. There is no dependence on the diameter of the solenoid, and the field strength doesn't depend on the position inside the solenoid, i.e., the field inside is constant.

The magnetic field is nearly uniform field in the center, i.e. inside of a long solenoid and the field outside is weak and divergent.

Q3 The most important safety method used for protecting home appliances from short circuiting or overloading is

- (a) Earthing
- (b) use of fuse wire
- (c) use of stabilizer
- (d) use of electric meter

Answer : (b) use of fuse wire

Feedback: Fuse is a safety device which breaks the circuit and stops the excessive current flow when the current rating is more than the safe value.

Q.4 In domestic electric circuits the colour of insulation covers of wires in the supply line generally in India is

- (a) red for live wire and green for neutral wire
- (b) red for live wire and black for neutral wire.
- (c) green for live wire and red for neutral wire
- (d) green for live wire and black for neutral wire

Answer : (b) red for live wire and black for neutral wire.

Feedback : In domestic electric circuits the black colour of insulation covering is typically used for neutral wire. The live wire is red and the earth wire is green.

Q5 Assertion(A) : Alternating current is used in household supply.

Reason(R) : The AC electric power can be transmitted over long distances without much loss of energy.

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (b) Both (A) and (R) are true and (R) is not the correct explanation of (A)
- (c) (A) is true but (R) is false
- (d) (A) is false but (R) is true

Answer : (a) Both (A) and (R) are true and (R) is the correct explanation of (A)

Feedback : Alternating Current (AC) is a type of electrical current, in which the direction of the flow of electrons switches back and forth at regular intervals or cycles. Current flowing in power lines and normal household electricity that comes from a wall outlet is alternating current.

Read the paragraph and answer the questions given below.

Biodegradable & Nonbiodegradable Waste

Industrialization and rise in demand of consumer goods have created a major problem in the form of wastes/garbage accumulation and its disposal especially in urban areas. The disposal of waste should be done in a scientific way. There are different methods of waste disposal. The method to be used depends on the nature of the waste. Some of the important modes of waste disposal are incineration, open dumping, land filling



Q6 Which of the following groups of material contains only Non Biodegradable items?

- (i) Wood, paper and leather
- (ii) Polythene, Detergent and PVC
- (iii) Plastic, detergent and grass
- (iv) Plastic, Bakelite and DDT

- (a) (iii) and (iv)
- (b) (i) and (iv)
- (c) (i) and (iii)
- (d) (ii) and (iv)

Answer : (d) (ii) and (iv)

Feedback : There are other substances such as metals, plastics detergent etc which cannot be broken down into simpler substances and are termed as Non Biodegradable substances.

Q7 Which of following groups of organisms are not constituents of a food chain?

- (i) Grass , Lion, Rabbit, wolf
- (ii) Plankton , man , fish , grasshopper
- (iii) Wolf. grass , snake , tiger
- (iv) Frog , snake, eagle, grass, grasshopper

- (a) (i) and (iii)
- (b) (iii) and (iv)
- (c) (ii) and (iii)
- (d) (i) and (iv)

Answer: (c) (ii) and (iii)

Feedback : The organisms in an ecosystem are related through food requirements. This relationship is called food chain. In option (i) grass is eaten by rabbit, rabbit is consumed by wolf and lion eats wolf. In option (iv) grasshopper eats grass, frog eats grasshopper, snake eats frog and eagle consumes snake. In option (ii) grasshopper is found in terrestrial ecosystems not aquatic ecosystems. In option (iii) there is no herbivore animal to consume grass. Thus, the correct answer is option C.

Q8 ASSERTION - Accumulation of harmful chemicals is higher in case of organisms at higher trophic level.

REASON - The number of steps in any food chain is restricted to three to four.

- (a) Both assertion and reason are correct and reason is the correct explanation of assertion.
- (b) Both assertion and reason are correct but reason is not the correct explanation of assertion.
- (c) Assertion is true but reason is false.
- (d) Assertion is false but reason is true

Answer : (b) Both assertion and reason are correct but reason is not the correct explanation of assertion.

Feedback : When the organisms in the higher food chain feed on the organisms in the lower food chain containing toxic material , these toxins get accumulated in the higher organisms. This is known as Biological Magnification.

Food chains follow the ten percent energy law, according to which only 10% of the total energy is passed onto the higher trophic levels, whereas 90% of energy is lost in the form of heat into the environment.

Based on the 10% energy law, if food chains are longer, then the organisms present at a higher trophic level will get significantly less energy.

To provide organisms with sufficient energy in the body, it is good to have food chains with only three to four steps.

Both (A) and (R) are true but they do not explain each other.

Q9 Excessive exposure of humans to UV rays result in

- (i) Damage to immune system
 - (ii) Damage to lungs
 - (iii) Skin Cancer
 - (iv) Peptic Ulcer
- (a) (i) and (ii)
 - (b) (ii) and (iv)
 - (c) (i) and (iii)
 - (d) (iii) and (iv)

Answer : (c) (i) and (iii)

Feedback : Excessive exposure of humans to UV rays results in damage to the immune system and skin cancer and Cataract

Q10 Role of Decomposers in ecosystem

- (a) Converts inorganic material into simpler form
- (b) Converts organic material to inorganic form
- (c) Converts inorganic material into organic compound
- (d) Do not breakdown organic compounds

Answer : (b) Converts organic material to inorganic form

Feedback : Decomposers play a critical role in the flow of energy through an ecosystem. They break apart dead organisms into simpler inorganic materials, making nutrients available to primary producers.