

Q. 1. (A)

- (i) (B)
- (ii) (A)
- (iii) (C)
- (iv) (C)
- (v) (B).

Q. 1. (B)

- (i) Kerala, Assam
- (ii) The organism is yeast and the mode of reproduction is asexual reproduction by budding.
- (iii) Tortoise
- (iv) Gluconeogenesis
- (v) Vinegar – (c) Acetic acid.

Q. 2. (A)

- (i) (1) During human evolution, the climate of earth started becoming dry.
(2) This resulted in loss of forest cover.
(3) The apes which were arboreal on the trees thus descended and started walking on land.
(4) The lumbar bones underwent change and the apes started walking upright on the grasslands.
(5) The vertebral column also underwent change. Due to upright posture the forelimbs were freed from locomotion.
(6) The legs started bearing the weight of the body and the hands became available for use.
- (ii) (1) In older women the menopausal age approaches.
(2) The oocytes, released from ovaries during this phase are not normal.
(3) Their meiotic cell division is abnormal and thus oocyte becomes abnormal too.
(4) If such abnormal oocytes are fertilized, the baby is born with many genetic problems. e.g. Down's syndrome or Turner's syndrome.
- (iii) (1) Reptiles are cold-blooded animals.
(2) The thermoregulatory system is not there in their bodies.
(3) Their body temperatures, fluctuate as per the environmental temperatures.
(4) Therefore, the body temperature is not maintained at constant level in reptiles.

Q. 2. (B)

- (i) (1) In order to make the bread the baker's yeast – *Saccharomyces cerevisiae* is added to the flour for the fermentation process.
- (2) In commercial bakery, compressed yeast is used while in domestic settings dry, granular form of yeast is used.
- (3) The flour prepared by using commercial yeast contains various useful contents like carbohydrates, fats, proteins, various vitamins and minerals.
- (4) The anaerobic fermentation also increases the nutritive content of the flour.
- (5) Due to this, bread and other products produced with the help of yeast become nutritive.
- (ii) (1) Pollution is created only due to human activities. Air, water, soil, noise, radiation, thermal, light, plastic are different types of pollution.
- (2) All types of pollution affect environment and particularly threatening the survival of living organisms.
- (3) Pollution must be controlled in order to have good quality of the environment. E.g. When plastic is thrown anywhere, it causes pollution of the land, it clogs the rain water drains, it affects feeding of the animals. Plastic pollution can be completely stopped by us through proper management of plastic waste. By recycling or reusing, we can overcome the plastic pollution. This would be a powerful way of environmental management.
- (4) Similarly, when we reduce pollution of different types, we automatically help to regain the environmental health.
- (iii) Sacred grove is the green patch of the forest which is conserved by local people in the name of God. It does not belong to forest department. It is like a sanctuary that is conserved by the common people and tribals in the area. It is rich in the biodiversity. It is conserved as there is a faith that God or deity reside in the sacred grove. Hence in local language, they are known as Deorai. Due to this reason, people do not fell the trees. Also hunting of any wildlife is not done here. More than 13,000 sacred groves have been reported in India. Most of these are in Western Ghats in Maharashtra, Karnataka and Kerala. Also, in remaining parts of India sacred groves are reported. Role of sacred grove is tremendous in conserving the biodiversity.
- (iv) (1) Due to starvation or hunger, there is less supply of nutrients and energy to the body. In such condition, the stored carbohydrates in the body also deplete.
- (2) In such condition, fats and proteins present in the body are utilized.
- (3) Fats or lipids are converted into fatty acids and proteins are broken down to amino acids.
- (4) Fatty acids and amino acids both are converted to acetyl-coenzyme-A.
- (5) Acetyl-coenzyme-A can undergo series of cyclic reactions and oxidised to liberate energy in the form of ATP molecules.

(v) There were different methods of classification of animals.

- (1) The first classification method was given by the Greek philosopher Aristotle. He took into account the criteria like body size, habits and habitats of the animals. This method was called artificial method of classification.
- (2) The same artificial method was used by other scientists such as Theophrastus, Pliny, John Ray, Linnaeus, etc.
- (3) Further due to advances in science the references were changed and there were some new methods of classification proposed.
- (4) The system of classification called 'Natural system of classification' was then proposed. This system of classification was based on criteria such as body organization, types of cells, chromosomes, bio-chemical properties, etc.
- (5) Later, Dobzhansky and Meyer gave the system of classification based on evolution.
- (6) In 1977, Carl Woese has also proposed the three domain system of animal classification.

- 9. 3.** (i) (1) Compressed : Compressed substances are filled under pressure in some container. If mishandled, they can come out of the container by bursting it open. This can cause some injuries.
- (2) Corrosive : The corrosive substances are very reactive. The mere touch of corrosive substances can cause destruction of skin, eyes, respiratory passages, digestive organs, etc. rapidly. Just touching or smelling of such substances can cause major injury and thus warning sign of corrosive substance should never be ignored.
- (3) Toxic : To taste a toxic substance or even to smell it, can lead to death. The packing of these substances are therefore marked as dangerous. They should be avoided as far as possible.

(ii) (1)

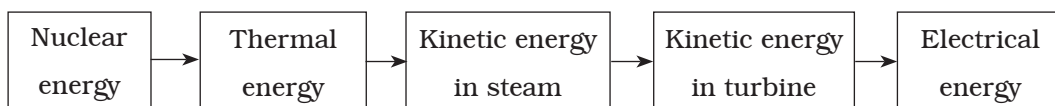
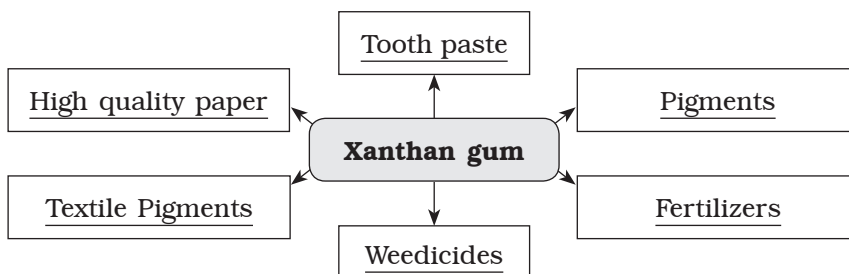


Fig. Flow chart showing energy transformation in nuclear power plant

- (2) Advantage of using nuclear power : It does not produce air pollution as it takes place while burning the fossil fuel.
- (3) Disadvantage of using nuclear power : Radioactive and harmful radiations are emitted after fission of nuclei occurs.

(iii)



(iv)	Conventional Sources of energy	Non-conventional Sources of energy
	(1) Conventional sources of energy are largely polluting, they release lot of carbon through its emissions.	(1) Non-conventional sources of energy are not polluting. They do not release carbon or other toxic gases.
	(2) Conventional sources of energy are not eco-friendly.	(2) Non-conventional sources of energy are eco-friendly.
	(3) The fuels produced from the conventional sources of energy are comparatively costlier.	(3) The energy obtained from the non-conventional sources of energy are comparatively cheaper.
	(4) Conventional energy power plants require less area and its management cost is also less.	(4) Non-conventional energy power plants require more area and its management cost is also more.
	(5) Conventional source of energy are non-renewable.	(5) Non-conventional source of energy are renewable.
	(6) Conventional sources of energy are in the form of limited reserves. After few years they will be completely over. e.g. Fossil fuels, coal, crude oil, diesel, petrol, natural gas, etc.	(6) Non-conventional energy sources are in abundance on the earth. They are persistent and sustainable. Thus they will not get over. e.g. Solar energy, wind energy, etc.

(Note : Any 3 points are expected.)

(v) The pictures given are *Peripatus*, lung fish and Duck billed platypus.

- (1) *Peripatus* : *Peripatus* is the connecting link between Annelida and Arthropoda. It shows characters of both animal phyla. Like annelid worm, it shows segmented body, thin cuticle and parapodia. Like an arthropod, it shows open circulatory system and tracheal system for respiration.
- (2) Lung fish : Lung fish is a connecting link between fishes and amphibians. Though a fish, it shows lungs for respiration as in amphibian animals.
- (3) Duck Billed platypus : This is a connecting link between reptiles and mammals. Like reptiles it lays eggs but like mammals it has mammary glands and hairy skin.
- (4) Connecting links indicate the direction and hierarchy of evolution.

(vi)

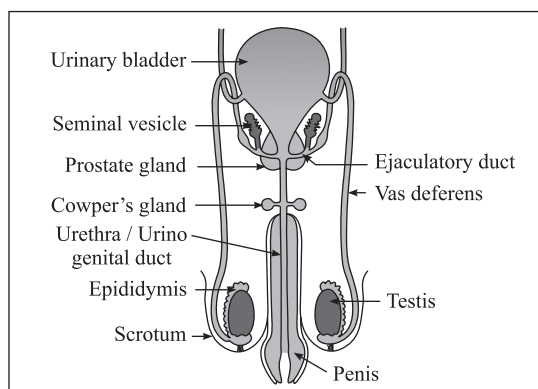
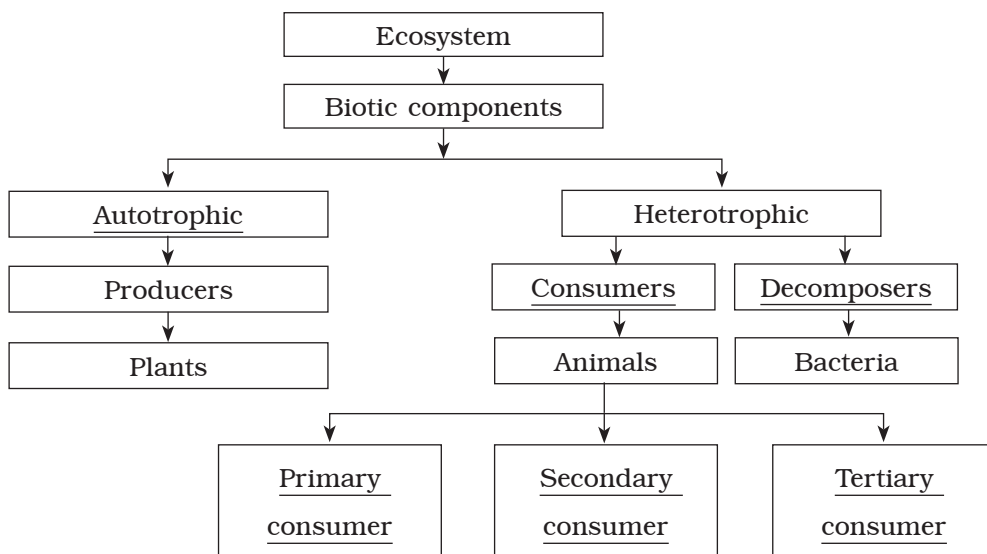


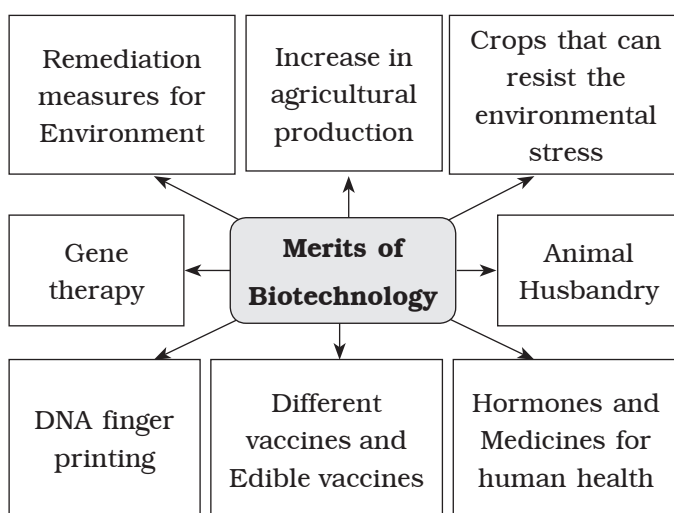
Fig. : Male reproductive system of human



(vii)

- (viii) (1) Milk : Proteins (caesin) are converted into amino acids. Lactose sugar is converted into glucose. Lipids are converted into fatty acids and glycerol.
 (2) Potato : Carbohydrates (starch) are converted into glucose.
 (3) Oil : Lipids are converted into fatty acids and glycerol.

9. 4. (i) (1) Technology that brings about artificial genetic changes and hybridization in organisms for human welfare is called biotechnology.



- (ii) (1) PIN numbers and CVV numbers of ATM cards are stolen and fraudulent transactions are done by the criminals. The saved money is stolen by these people in such a way.
 (2) The details of AADHAR and PAN card can be stolen and wrong kind of transactions are done by such people.
 (3) Fake Facebook accounts are opened and wrong type of communications are done through such way.
 (4) In on-line purchases, many a times consumers are cheated. In this, the consumers are shown superior items on websites but actually the inferior ones are sold to them.

- (5) 'Hacking of information' is done by some programmers in which the confidential information about government, institutes and companies is obtained from internet with the help of computer programs.
 - (6) Misuse of electronic media to spread derogatory messages and vulgar chat is often done by criminals who indulge into cybercrime.
 - (7) In internet piracy, written literature, photos, videos are used without the knowledge of a person who owns it. This matter is misused or illegally used.
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