10TH STANDARD SCIENCE 2

QUESTION WISE PYQ

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SERIES 2026 - 27



10th Standard | Science 2 | Question wise PYQ

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Q.1. (A) Choose the correct alternative: [5]

i. Flipper of whale is _____ type of evidence of evolution.
(A) Connecting link (B) Anatomical
(C) Embryological (D) Palaeontological

ii. In humans, _____ chromosome is responsible for maleness.
(A) X (B) Y (C) XY (D) XX

iii. Harmful bacteria like _____ in the intestine are destroyed due to probiotics.
(A) *Lactobacillus* (B) *Clostridium*
(C) *Geobacter* (D) *Pseudomonas*

iv. Laughter Club is remedy to drive away _____.
(A) Cancer (B) Diabetes
(C) Heart attack (D) Mental stress

v. Srishailam in Andhra Pradesh has _____ energy power plant.
(A) Hydroelectric (B) Wind (C) Thermal (D) Solar

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Q.1. (A) Choose the correct alternative: [5]

i. The causality behind the sudden changes was understood due to _____ principle of Hugo de Vries.
(A) Appendix (B) Mutation
(C) Transcription (D) Translocation

ii. After complete oxidation of a glucose molecule, _____ number of ATP molecules are formed.
(A) 18 (B) 28 (C) 38 (D) 48

iii. Bat is included in class _____
(A) Amphibia (B) Reptilia (C) Aves (D) Mammalia

iv. In Maharashtra, the major hydroelectric power plant is located at _____
(A) Chandrapur (B) Koyana (C) Parali (D) Tarapur

v. A first state to start a separate cyber crime unit in our country is _____
(A) Madhya Pradesh (B) Maharashtra (C) Gujarat (D) Karnataka

v

July 2025 Q.1 (A) www.saiphy.com

Q.1. (A) Choose the correct alternatives: [5]

i. Our muscle cells perform _____ type of respiration during exercise.
(A) Aerobic (B) Anaerobic (C) Fermentation (D) Krebs Cycle

ii. Which of the following animals can regenerate its broken body part?
(A) Cockroach (B) Frog (C) Sparrow (D) Starfish

iii. Government of India has encouraged the _____ for improving the productivity by launching NKM-16.
(A) Apiculture (B) Cultivation of medicinal plants
(C) Pisciculture (D) Fruit processing

iv. At the district level _____ is responsible for disaster management and implementation of rehabilitation schemes.
(A) Collector (B) Tahsildar
(C) Education Officer (D) Chief Executive Officer

v. _____ of West Bengal is reserved for tigers.
(A) Manas National Park (B) Western Ghat
(C) Molai Jungle (D) Sundarban National Park

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Q.1. (A) Choose the *correct* option and write the correct alternative: [5]

i. A molecule of glucose is completely oxidised in aerobic respiration and molecules of H_2O and _____ are produced along with energy.
(A) CO_2 (B) O_2 (C) NaOH (D) HNO_3

ii. Vinegar contains _____ acid.
(A) acetic (B) lactic (C) tartaric (D) hydrochloric

iii. Any nucleotide of the gene suddenly changes its position that causes a minor change which is nothing but the _____
(A) changes (B) mutation (C) disability (D) translocation

iv. In humans, sperm production occurs in the _____ organ.
(A) vas deferens (B) ejaculatory duct
(C) testes (D) urinogenital duct

v. Solar photovoltaic cells converts the solar radiation energy directly into _____ energy.
(A) Chemical (B) Solar (C) Mechanical (D) Electrical

Q.1. (A) Choose *correct* option and write its number for the following questions: [5]

i. Evolution means _____ . 1
(A) Internal change (B) Gradual change
(C) External change (D) Quick change

ii. One of the rare species is _____ . 1
(A) Lesser florican (B) Red panda
(C) Tiger (D) Shekhru

iii. The machine which converts the kinetic energy of wind to electrical energy is called _____ . 1
(A) Solar cell (B) Thermal
(C) Generator (D) Wind turbine

iv. Chemically, vinegar is _____ . 1
(A) Acetic acid (B) Amino acid
(C) Hydrochloric acid (D) Gluconic acid

v. We get _____ kcal energy per gram of proteins. 1
(A) 4 (B) 3 (C) 2 (D) 1

Q.1. (A) Choose and write correct option number as answer: [5]

i. Regeneration occurs in _____.
(A) *Amoeba* (B) *Paramoecium*
(C) *Euglena* (D) *Planaria*

ii. *Lactobacillus brevis* gives us the beverage _____.
(A) cocoa (B) coffee
(C) wine (D) cider

iii. A minor change occurs due to change in position of any nucleotide is termed as _____.
(A) transcription (B) translocation
(C) mutation (D) translation

iv. Atomic power plant in Maharashtra is _____.
(A) Chandrapur (B) Koyana
(C) Tarapur (D) Anjanwel

v. Example of phylum Arthropoda is _____.
(A) scorpion (B) starfish
(C) earthworm (D) *Hydra*

Q.1. (A) Choose the *correct* alternative and write correct option number as answer: [5]

i. Genetic disorder like sickle cell anemia may be caused due to _____.
(A) mutation (B) translation
(C) translocation (D) transcription

ii. Protein like interleukin produced by biotechnology is used against_____ disease.
(A) anemia (B) cancer
(C) diabetes (D) haemophilia

iii. We get_____ of energy from one gram of lipid.
(A) 9 cal (B) 4 kcal
(C) 4 cal (D) 9 kcal

iv. The _____ bacteria are useful for cleaning the hydrocarbons and oil pollutants from soil and water.
(A) Lactobacilli (B) Acidobacillus
(C) Pseudomonas (D) Streptococcus

v. Human males have _____ numbers of chromosomes.
(A) 44 + XX (B) 44 + XY
(C) 22 + XY (D) 22 + XX

Q.1. (A) Write the *correct* alternative: [5]

i. Vestigial organ _____ present in human body is proof of evolution.
(A) Human hand (B) Appendix
(C) Ear muscles (D) Tail-bone

Note: * Above question has three possible answers, [Option (B), (C) and (D)].

Modified Question:

i. Vestigial organ _____ present in human body is proof of evolution.
(A) Human hand (B) Appendix
(C) Ear (D) Tail

ii. Type of sexual reproduction is _____.
(A) Fragmentation (B) Regeneration
(C) Gamete formation (D) Budding

Note: * Gamete formation is a process involved in sexual reproduction. It is not a type of sexual reproduction.

Modified Question:

ii. _____ is not a type of asexual reproduction.
(A) Fragmentation (B) Regeneration
(C) Gamete formation (D) Budding

iii. The apex consumer is _____.
(A) Eagle (B) Frog
(C) Snake (D) Grasshopper

iv. The Hydroelectric capacity of Koyna dam is _____.
(A) 2400 MW (B) 1960 MW
(C) 1900 MW (D) 1961 MW

v. Animal with bilateral symmetry is _____.
(A) Star fish (B) Human
(C) *Paramoecium* (D) *Amoeba*

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Q.1. (A) Choose the *correct* option and write its number for the following questions: **[5]**

i. Glycolysis and _____ are two steps of anaerobic respiration.
(a) Kreb's cycle (b) Electron transfer chain reaction
(c) Fermentation (d) Reduction

ii. _____ is used in thermal power plant.
(a) Coal (b) Uranium (c) Natural gas (d) Water

iii. Chemically, vinegar is 4% _____.
(a) Gluconic acid (b) Amino acid
(c) Citric acid (d) Acetic acid

iv. Government of India has encouraged the _____ for improving the production by launching NKM-16.
(a) Apiculture (b) Vermiculture
(c) Pisciculture (d) Sericulture

v. Alcohol consumption mainly affects _____ system.
(a) Respiratory (b) Nervous
(c) Digestive (d) Circulatory

Q.1. (A) Write the *correct* alternative: **[5]**

i. Bones contain _____ amino acids.
(A) Melanin (B) Haemoglobin
(C) Ossein (D) Insulin

ii. Giant squirrel is an example of _____ threatened species.
(A) Endangered (B) Rare
(C) Vulnerable (D) Indeterminate

iii. Human being belongs to _____ class.
(A) Mammalia (B) Amphibia
(C) Reptilia (D) Cyclostomata

iv. Organs like _____ can be donated after death.
(A) Skin (B) Heart
(C) Lungs (D) Bones

v. Volcano is a _____ disaster.
(A) Social (B) Political
(C) Biological (D) Geological

Q.1. (A) Choose the *correct* alternative from the given options: **[5]**

i. Water reservoir possesses _____ energy.
(A) Nuclear (B) Thermal
(C) Kinetic (D) Potential

ii. In mitotic division, nuclear membrane completely disappear in _____ phase.
(A) Telophase (B) Prophase
(C) Metaphase (D) Anaphase

iii. Genetic changes occur due to _____ pollution.
(A) Radioactive (B) Air (C) Water (D) Soil

iv. In human, sperm production occurs in the _____ organ.
(A) Seminal vesicle (B) Testes
(C) Prostate gland (D) Cowper's gland

v. Which sanctuary of Assam is under threat due to dams and indiscriminate use of water?
(A) Tadoba (B) Kaziranga (C) Manas (D) Sundarban

Q.1. (A) Choose the correct option and write its number for the following questions: **[5]**

i. Transfer of information from molecule of DNA to mRNA is called _____ process.
(A) Transcription (B) Translation (C) Translocation (D) Mutation

ii. Body breaks up into several fragments and each fragment starts to live as a new individual. This is _____ type of reproduction.
(A) Budding (B) Fragmentation (C) Regeneration (D) Binary fission

iii. Incomplete combustion of fuels leads to formation of _____
(A) Carbon monoxide (B) Carbon dioxide
(C) Chlorofluorocarbon (D) Hydrogen sulphide

iv. The spindle fibres start appearing from _____ stage of karyokinesis.
(A) Prophase (B) Metaphase (C) Anaphase (D) Telophase

v. Salts which can be used as supplement of calcium and iron are obtained from _____
(A) Carbonic acid (B) Acetic acid (C) Citric acid (D) Gluconic acid

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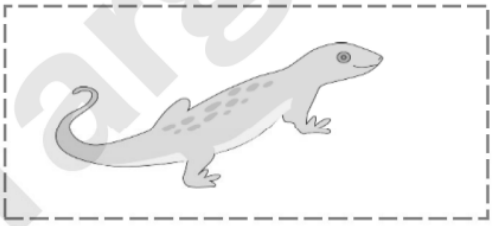
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(B) Answer the following questions: **[5]**

i. Select odd man out:
Prophase, Metaphase, Anaphase, Meiosis

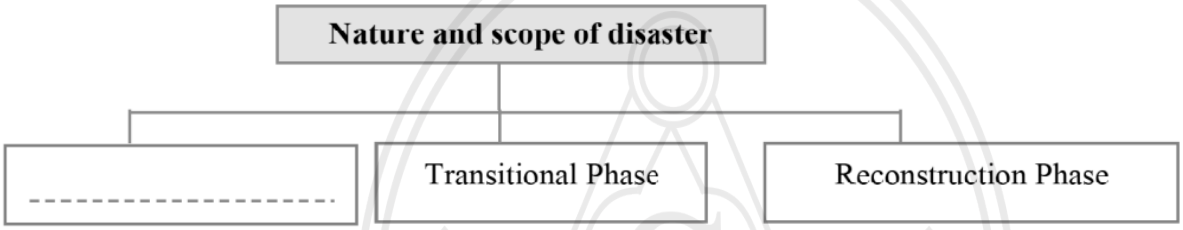
ii. Reorganize the following food chain:
Grasshopper — Snake — Paddy field — Eagle — Frog

iii. Identify the class of the animal shown in the given diagram



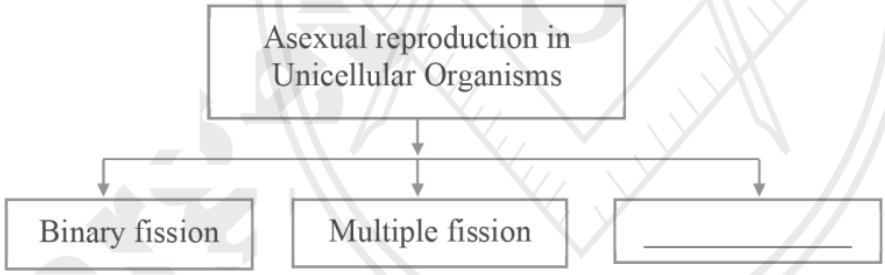
iv. Complete the following correlations:
Interferon : Viral infection :: Erythropoietin : _____

v. Write the correct word in the box.



(B) Answer the following questions: **[5]**

i. Fill in the box with proper words :



ii. Which day is observed as World Biodiversity Day?

iii. Identify me, who am I?
I was the first cloned sheep born in Scotland.

iv. Write the molecular formula of acetic acid.

v. State whether the following statement is true or false :
The chairman of National Disaster Management is Sarpanch.

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(B) Answer the following questions: [5]

i. State whether the following statement is True or False:
Evolution is the gradual change occurring in living organisms over a long duration.

ii. Write the name of any *one* sexual disease.

iii. Select odd man out:
Gutkha, Yoga, Alcoholic drinks, Cigarette.

iv. Fill in the box with proper word:



v. Match the correct pair:

	Column A		Column B
i.	Xylitol	a.	To impart acidity
		b.	To impart sweetness
		c.	Pigment

(B) Answer the following questions: [5]

i. Find the odd one out:
Fragmentation, Regeneration, Budding, Fertilization.

ii. Write the correct co-relation:
Diabetes: Insulin :: Cancer: _____

iii. State whether true or false:
Study of fossils is an important aspect of the study of evolution.

iv. Give any *two* commercial uses of Biotechnology.

v. Being a fish, I perform respiration with the help of lungs. Who am I?

(B) Solve the following questions: [5]

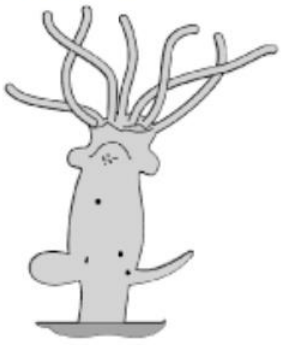
i. Find odd man out: 1
Starfish, Snail, Frog, Amoeba

ii. Match the correct pairs: 1

	Column 'A'		Column 'B'
(1)	Biotic components	(a)	Soil
		(b)	Plant
		(c)	Sunlight

iii. Write the correlation: 1
White revolution: Dairy :: Blue revolution: _____

iv. Observe the diagram and identify the phylum: 1



v. State, whether given statement is right or wrong: 1
Peer group influence is stronger in case of adolescents.

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(B) Solve the following: **[5]**

i. Pick the odd man out :
duckbill platypus, pomfret, lungfish, *Peripatus*.

ii. Write co-relation :
Skin: Melanin :: Pancreas : _____

iii. State, true or false :
Production of various useful aquatic organisms with the help of water is called blue revolution.

iv. Write full form of WHO.

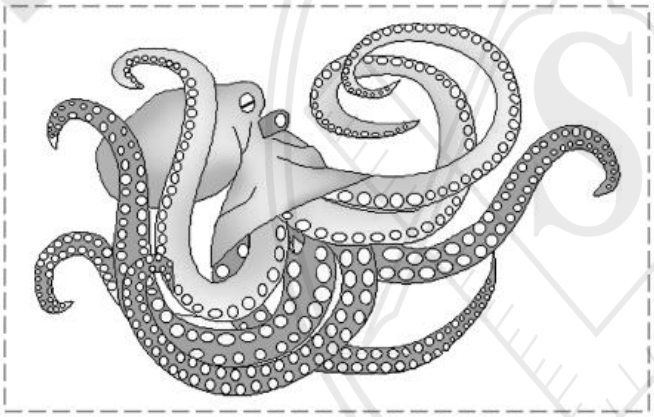
v. Match the pair:

	'A'		'B'
(1)	Male	(a)	44 + XX
		(b)	44 + XY
		(c)	44 + YY

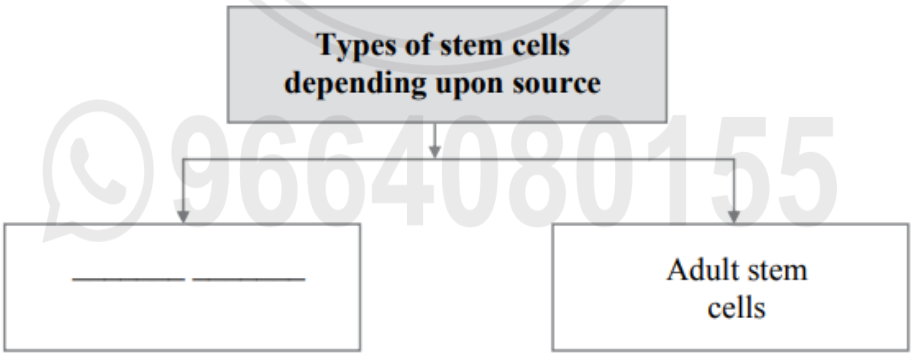
(B) Answer the following: **[5]**

i. Pick the odd man out:
β-carotene, lycopenes, xylitol, lutein.

ii. Identify the phylum of the given animal:



iii. Complete the given flow chart



iv. State, if True *or* False:
Communication media like mobile phone, television, internet should be used often.

v. Write the co-relation:
Ovary : Estrogen :: Testes: …….. .

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(B) Answer the following questions as per the given instructions: **[5]**

i. State whether the following statement is true or false:
To take selfie on road is the invitation for accident

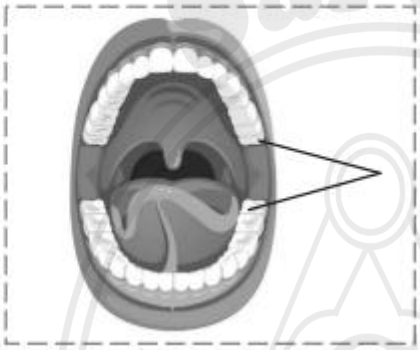
ii. Write the correct co-relation:
Insulin : diabetes : : Interferon : _____

iii. To which class does bat belong?

iv. Match the correct pair:

	Column 'A'		Column 'B'
(1)	Forest Conservation Act	(a)	1986
		(b)	1980
		(c)	1970

v. Write the name of indicated part in diagram:
Human jaw



(B) Answer the following questions: **[5]**

i. Write the scientific name of human being.

ii. Find the odd man out:
Actin, Ossein, Myosin, Aldosterone

iii. State whether True or False:
The power available from the solar cell is AC.

iv. I have calcareous spines and I move with tube feet, which phylum do I belong to?

v. Write any one example of natural disasters.

(B) Answer the following: **[5]**

i. Find the odd one out:
Earthquake, Flooding, Tsunami, War

ii. State true *or* false:
Oxidation of proteins is carried out in aerobic respiration.

iii. Complete the correlation:
Western ghat : Asiatic lion : : Sunderban sanctuary : _____

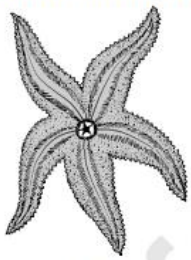
iv. Which type of fuel is used in thermal power plant?

v. Identify the picture and name it.



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(B) Answer the following sub-questions as per given instruction: **[5]**

i. 

Name the locomotory organ of animal shown in the above figure.

ii. Find the *correct* co-relation:
Spirogyra: Fragmentation :: Planaria : _____.

iii. Write whether the following statement is True *or* False:
DNA fingerprinting is mainly useful in Forensic Sciences.

iv. Write the molecular formula:
4% acetic acid (Vinegar).

v. Which molecules are necessary for the formation of plasma membrane?

Q.1. (B) Solve the following questions: **[5]**

i. Find odd one out:
Drying, Salting, Cooking, Soaking with sugar.

ii. Write the correct co-relation:
Annelida: Earthworm :: Platyhelminthes: _____

iii. State whether True/False:
Tobacco containing substances cannot cause cancer of mouth and lungs.

iv. Write function of testes.

v. I am connecting link between Reptilia and mammals. What is my name?

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Q.2. (A) Give scientific reasons (any *two*): [4]

i. *Peripatus* is a connecting link between Annelida and Arthropoda.

ii. Our body irritates if it comes in contact with jellyfish.

iii. Microbial enzymes are used instead of chemical catalysts in chemical industry.

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Q.2. (A) Give scientific reasons (any *two*):

i. The popularity of probiotic products is increasing.

ii. Body temperature of reptiles is not constant.

iii. Nowadays, farmers are opting for organic farming.

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Q.2. (A) Give scientific reasons (any *two*): [4]

i. Some of the organs in the human body are most valuable.

ii. Hydroelectric energy, solar energy and wind energy are called renewable energies.

iii. Fibres are one of the important nutrients.

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Q.2. (A) Give scientific reasons (any *two*): [4]

i. Sometimes, higher plants and animals too perform anaerobic respiration.

ii. It is not right to consider the mother responsible, for giving birth to a girl child.

iii. The energy generated from nuclear fuels is not environment friendly.

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Q.2. (A) Give scientific reasons (any *two*):

i. Fibers are one of the important nutrients.

ii. Though tortoise lives on land as well as in water, it cannot be included in class-Amphibia.

iii. Hydroelectric energy, solar energy and wind energy are called renewable energies.

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Q.2. (A) Give scientific reasons (any *two*): [4]

i. Though tortoise lives on land as well as in water, it cannot be included in class-Amphibia.

ii. Hydroelectric energy, solar energy and wind energy are called renewable energies.

iii. We feel tired after exercise.

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Q.2. (A) Give scientific reasons (any *two*): [4]

i. Duck billed platypus is a connecting link.

ii. Biofuel is important among the renewable sources of energy.

iii. Humans have a crucial role in maintaining environmental balance.

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Q.2. (A) Give scientific reasons (any *two*): [4]

i. Sometimes higher plants and animals too perform anaerobic respiration.

ii. It is absolutely necessary to control the fission reaction in nuclear power plant.

iii. Flower is structural unit of sexual reproduction in plants.

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Q. 2. (A) Give scientific reasons: (*any two*) [4]

i. Water is an essential nutrient.

ii. Tobacco chewing is injurious to health.

iii. It is absolutely necessary to control the fission reaction in nuclear power plants.

Q.2. (A) Give scientific reasons (any *two*): **[4]**

i. Cell division is one of the important properties of cell and organisms.

ii. Cockroach belongs to phylum Arthropoda.

iii. Power generation plant based on natural gas is eco-friendly.

Q.2. (A) Give scientific reasons (any *two*): **[4]**

i. While performing the exercise, we feel tired.

ii. Hydroelectric energy, solar energy and wind energy are called renewable energies.

iii. Microbial enzymes are used instead of chemical catalysts in chemical industry.

Q.2. (A) Give Scientific Reasons. (Any two) **[4]**

i. Indians should follow family planning for controlling the population.

ii. We feel exhausted after exercising.

iii. Hydroelectric energy, solar energy and wind energy are called renewable energies.

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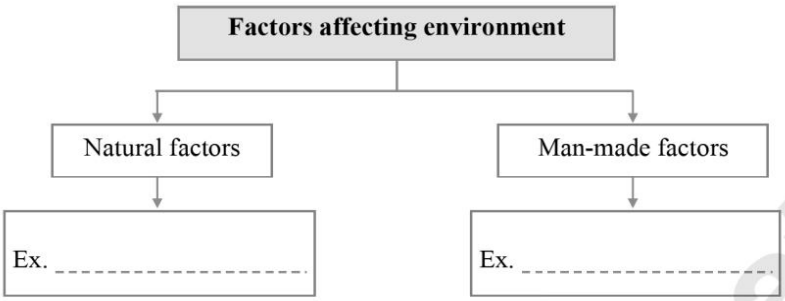
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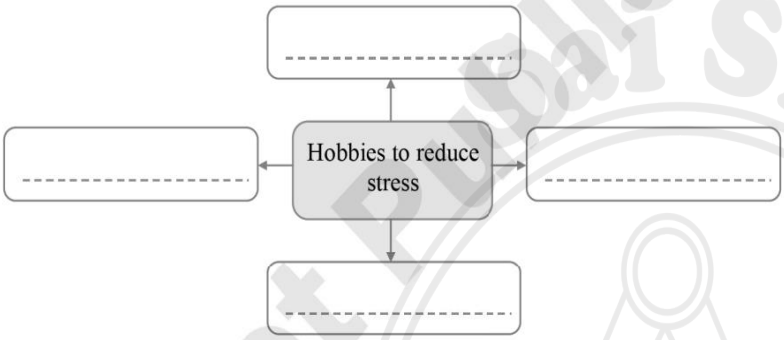
(B) Answer the following questions (any *three*): **[6]**

i. Distinguish between Aerobic respiration and Anaerobic respiration.

ii. Complete the concept map:



iii. Write the correct word in the blank spaces:



iv. Write any *two* objectives of disaster management.

v. Give *two* commercial applications of Biotechnology.

(B) Answer the following questions (any *three*): **[6]**

i. What is meant by carbon dating ? Give any one use of this technique.

ii. Complete the table:

Sr. No.	Protein	Name of Organ
a.	_____	Bones
b.	Insulin	_____

iii. Read the paragraph and answer the questions:
Paddy is cultivated on a large scale in various states of South India. Paddy fields are frequently attacked by grasshoppers. Similarly, frogs are also present in large numbers in the mud of paddy fields, to feed upon grasshoppers and snakes are also present therein to feed upon their favourite food-frogs. However, if frog population declines all of a sudden,
a. What will be the effect on paddy crop?
b. Number of which components will increase?

iv. Write any two advantages of hydroelectric power generation.

v. The following are the pictures of some disasters. How will be your post disaster management in case you face any of those disasters?


a.


b.

(B) Answer the following questions (any *three*): **[6]**

i. Observe the given animals and answer the questions:

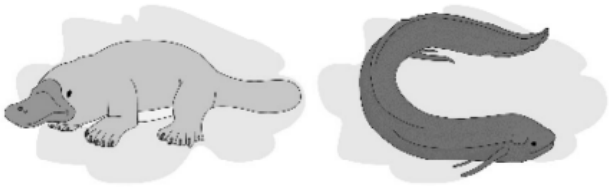


Fig. A Fig. B

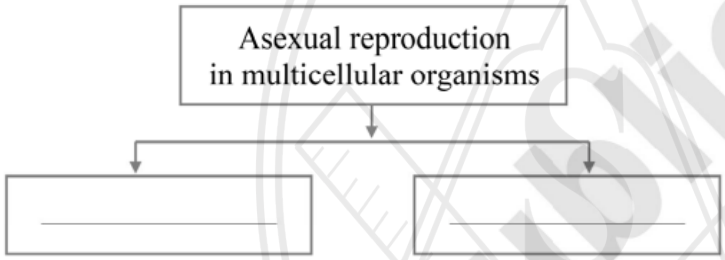
a. Identify the animals shown in above figure.

b. State the type of evidence of evolution related to above animals.

ii. Complete the table:

Sr. No.	Microbe used	Name of beverage
1.	*Lactobacillus brevis*	Coffee
2.	*Candida, Hansenula, Pichia, Saccharomyces*	_____
3.	*Saccharomyces cerevisiae*	Wine
4.	*Saccharomyces cerevisiae*	_____

iii. Fill in the box with proper word:



iv. Give *two* examples of each:

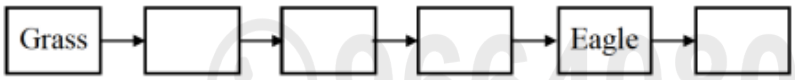
a. Physical problems arising due to excessive use of mobile phones.

b. Activities under the jurisdiction of cyber crime laws.

v. Write any *two* objectives of disaster management.

(B) Answer the following questions (any *three*): **[6]**

i. Complete the following food chain:



ii. Distinguish between the following:
Class Pisces and Class Reptiles

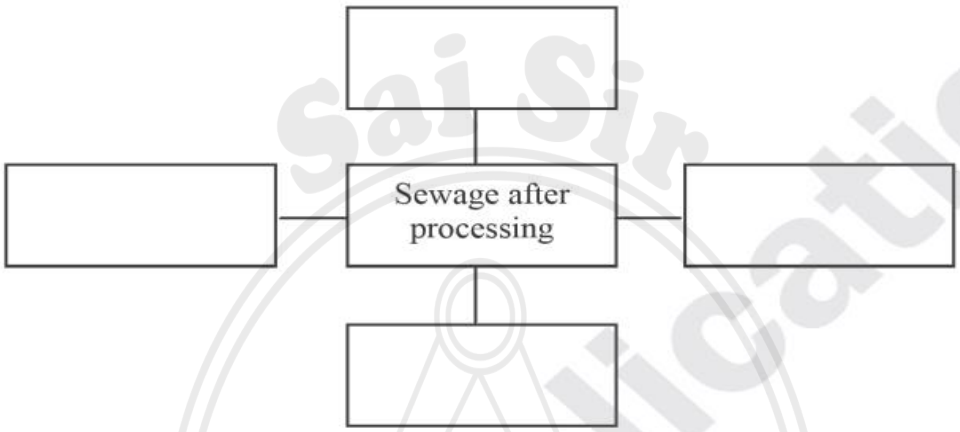
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iii. Observe the following picture and write any *two* effects of this disaster:



iv. Write any *four* methods to reduce stress.

v. Complete the following conceptual picture:



(B) Answer the following questions (any *three*): **[6]**

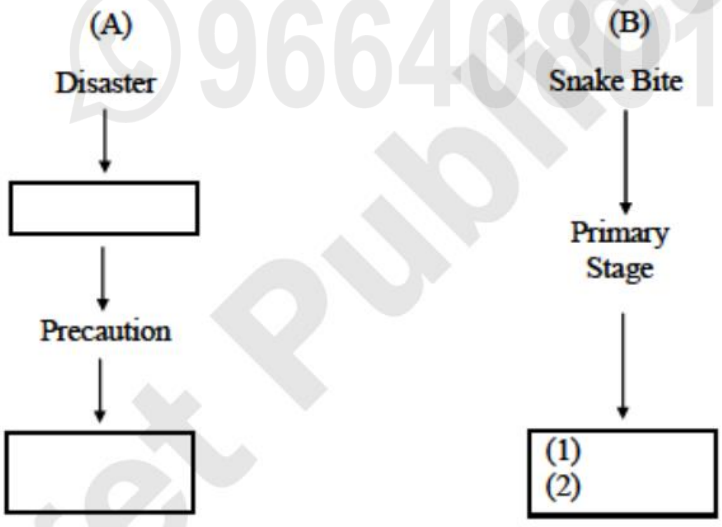
i. Write down *four* benefits of Biotechnology.

ii. Distinguish between Sexual reproduction and Asexual reproduction.

iii. Observe the following diagrams and complete table:

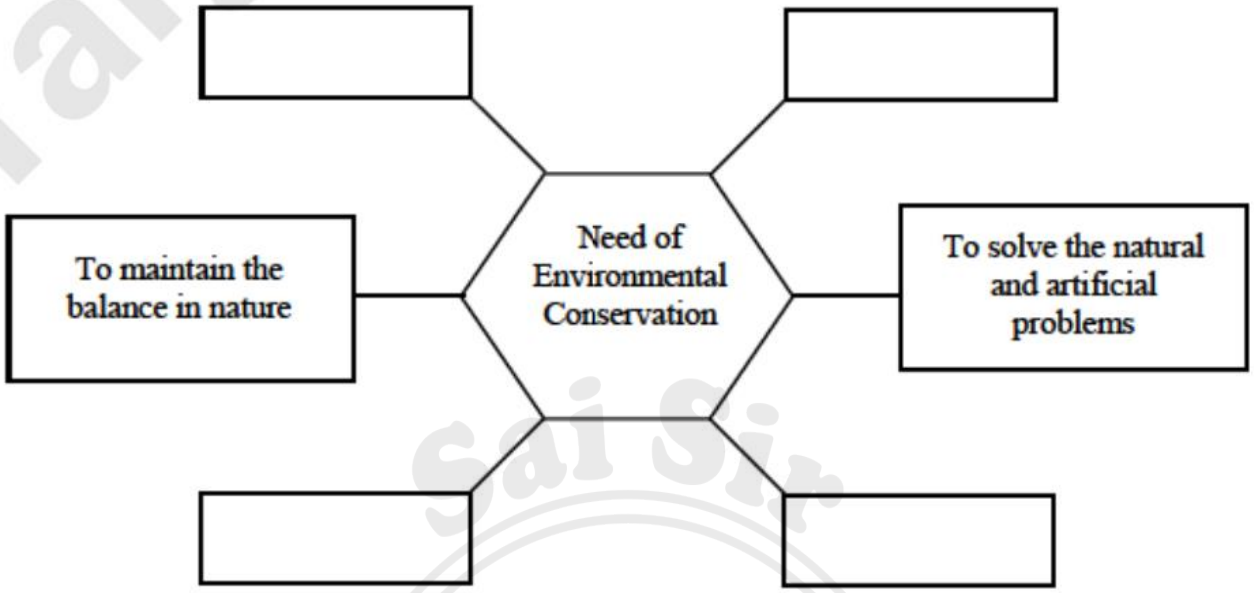






iv. Write down any *two* features of Industrial Microbiology.

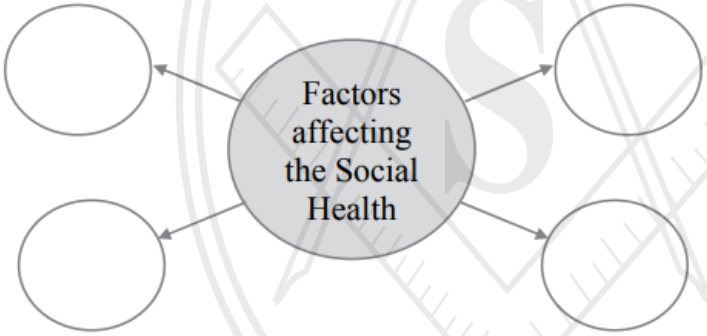
v. Complete the following flow chart:



(B) Answer any *three* of the following: **[6]**

i. Write *four* adverse effects of radiations on human body.

ii. Redraw and complete the given chart.



iii. Write any *four* important facts which must be thought over while considering the scope of disaster.

iv. Name *two* fuels obtained by microbial processes. Why is it necessary to increase the use of such fuels?

v. What is DNA fingerprinting? Where is it mainly useful?

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(B) Answer the following (any *three*): **[6]**

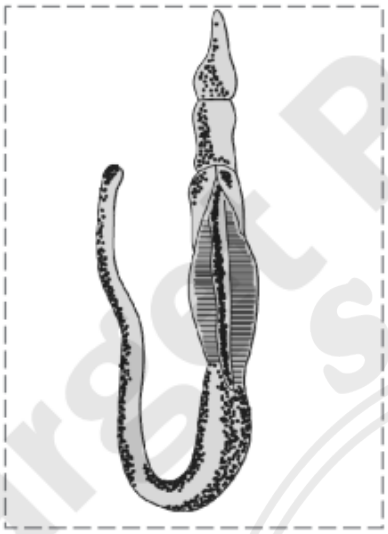
i. Draw a neat and labelled diagram of mitochondria and tri-carboxylic acid cycle.

ii. Write any *two* objections that were raised against Darwin's Theory of Natural Selection.

iii. Observe the given animal and answer the following questions:

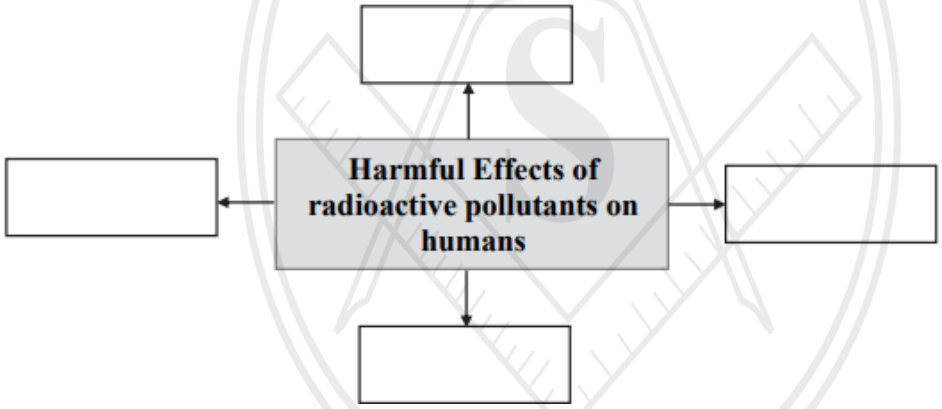
(a) Identify the given animal and its phylum.

(b) Write any *two* characteristics of that phylum.



iv. Write any *two* objectives of disaster management.

v. Complete the given conceptual chart:

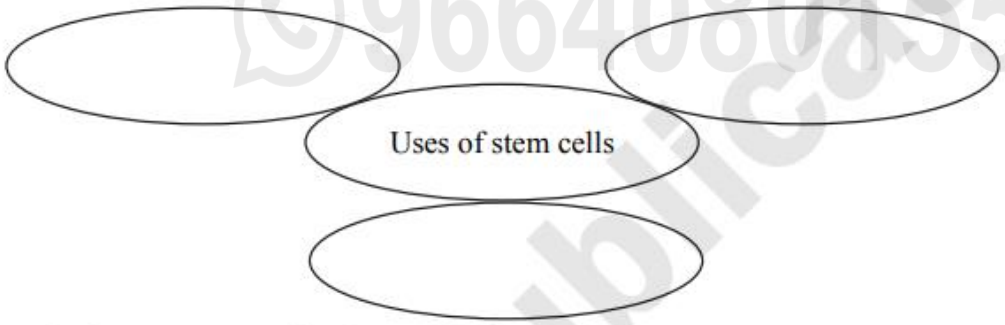


(B) Answer the following questions (any *three*): **[6]**

i. Write a short note on Environmental Conservation.

ii. Distinguish between Chordates and Non-chordates.

iii. Write the correct answer in blank circles.

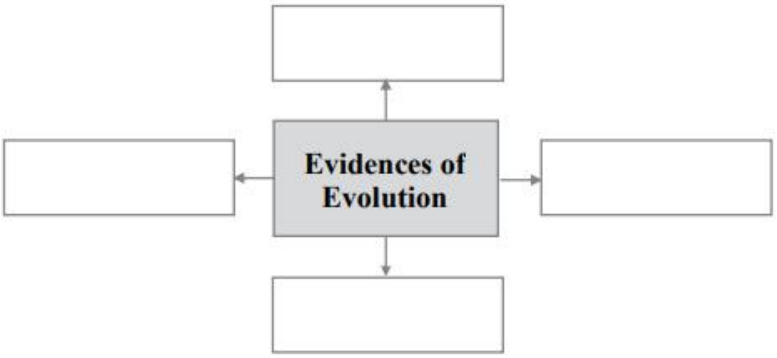


iv. Write down any *two* objectives of disaster management.

v. What are the benefits of mixing ethanol with petrol and diesel?

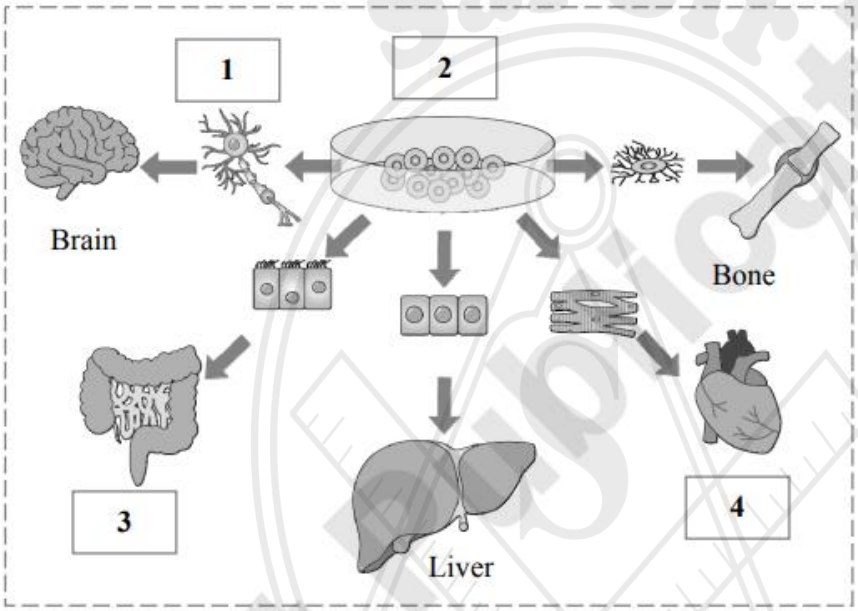
(B) Answer the following questions: (*any three*) **[6]**

i. Complete the following chart:



ii. What is environment ? Write two types of environment.

iii. Observe the given diagram and write proper names in the blocks.

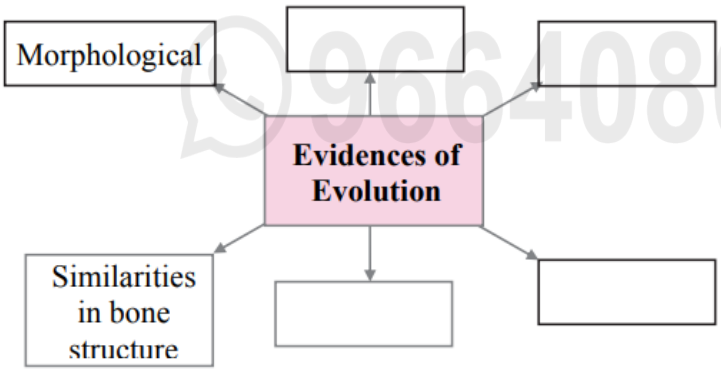


iv. Which precautions should be followed to maintain the reproductive health?

v. Distinguish between butterfly and bat with the help of two distinguishing characteristics.

(B) Answer the following (any *three*): **[6**

i. Complete the following diagram:



ii. What do we learn from the story of Jadav Molai Payeng?

iii. Distinguish between sexual reproduction and asexual reproduction. (*two* points)

iv. Define genetically modified crops and give any *two* examples.

v. What are vitamins? Write *two* types of vitamins.

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(B) Answer the following questions (any *three*): **[6]**

i. Distinguish between Aerobic respiration and Anaerobic respiration (any *two* points).

ii. Write a short note on Sacred groves.

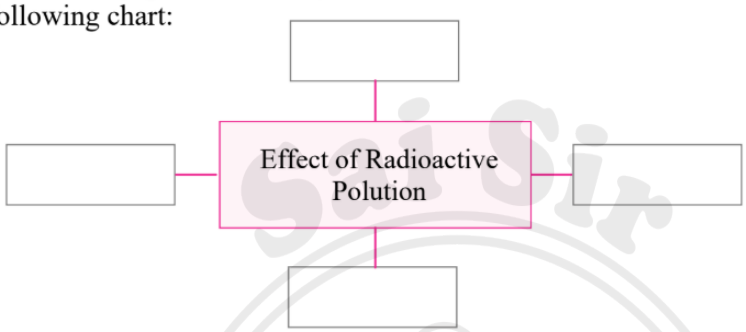
iii. Explain the term:
Modern technology of reproduction IVF.

iv. How is Balanoglossus connecting link between chordates and non-chordates?

v. Explain Darwin's theory of natural selection.

Q.2. (B) Solve the following questions. (Any three) **[6]**

i. Complete the following chart:



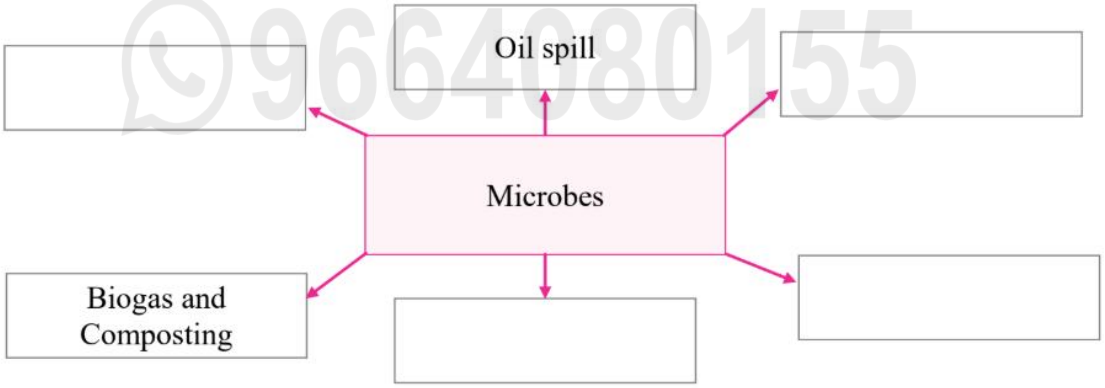
ii. Distinguish between Aves and Mammalia.

iii. By observing given picture, write any two effects of this disaster:



iv. Explain four ways to minimize stress.

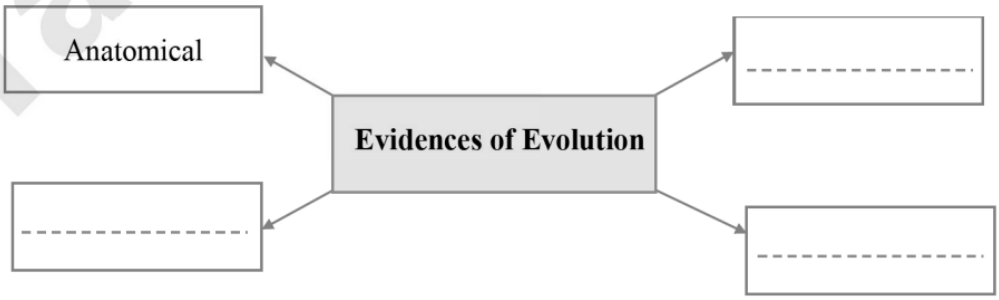
v. Complete the following conceptual picture:



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Q.3. Answer the following questions (any *five*): **[15]**

i. Complete the following diagram:

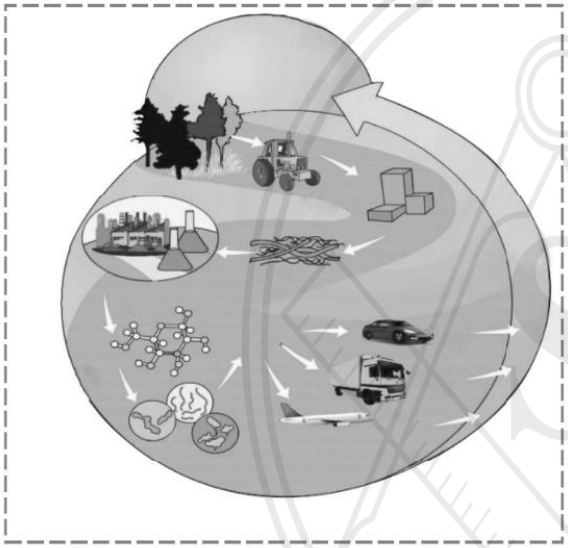


ii. Explain the process of glycolysis.

iii. Write a short note on environmental conservation.

iv. Write any *three* distinguishing characters of phylum Echinodermata.

v. Observe the diagram given below and answer the questions:

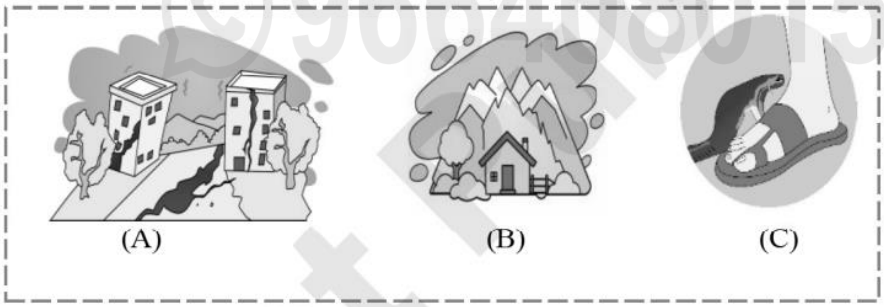


a. Which fuel is shown in the above diagram?
b. Give *two* examples of each solid and liquid fuel.

vi. What is meant by stem cells? Write any *two* uses of stem cells.

vii. What will you do in the following situation? Why?
Child of your neighbour is addicted to tobacco chewing.

viii. Following are some pictures of disasters. Which precautions would you take during these disasters?



Q.3. Answer the following questions (any *five*): [15]

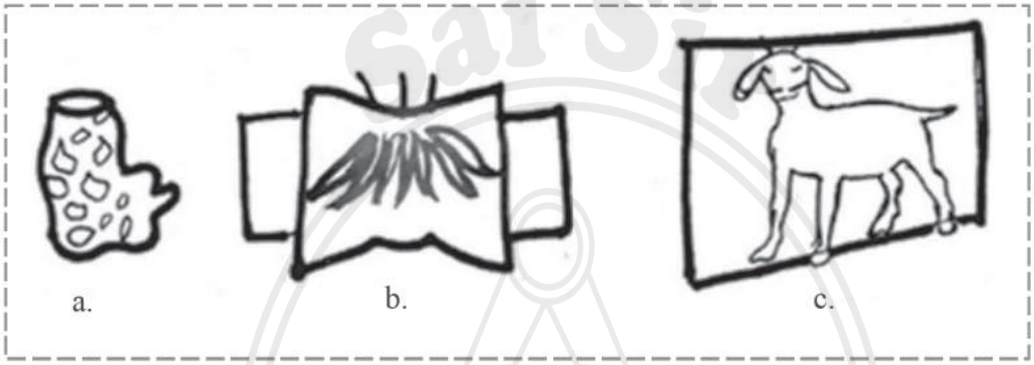
i. Explain theory of Lamarckism with the help of any two suitable examples.

ii. Name the type of cells in which mitosis occurs? Write four stages of karyokinesis.

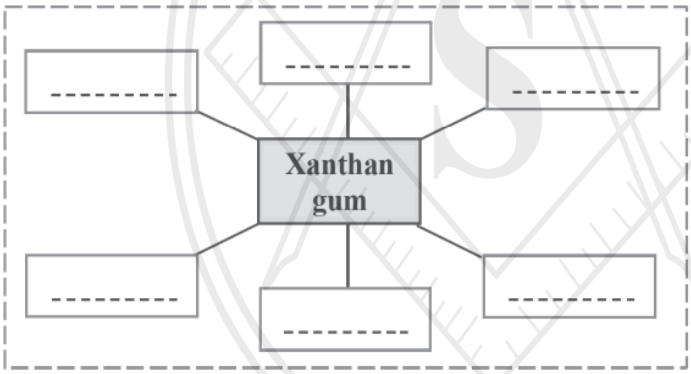
iii. Give two examples of each of the threatened species given below:
   a. Endangered species
   b. Rare species
   c. Vulnerable species.

iv. Which fuel is used in thermal power plant? What are the problems associated with this type of power generation?

v. Identify the type of body symmetry of the animals shown in the given pictures:



vi. Complete the following conceptual picture with respect to uses:



vii. Which precautions will you take during spraying of pesticides?

viii. Write the names of any six materials in first aid box.

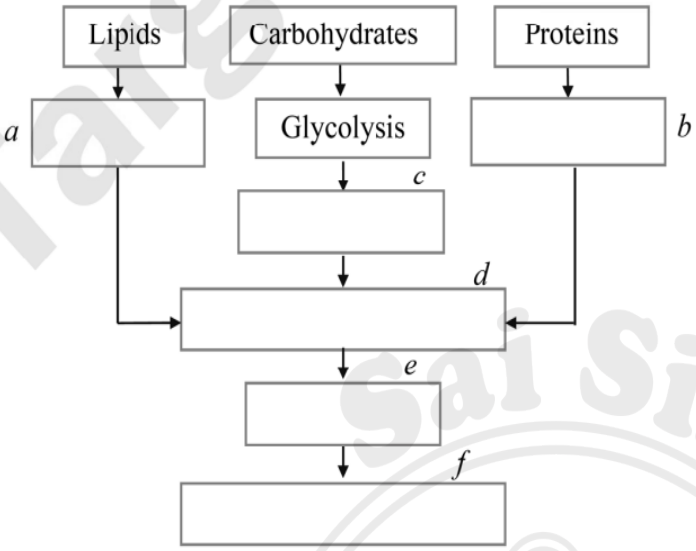
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Q.3. Answer the following questions (any *five*): **[15]**

i. Distinguish between Sexual reproduction and Asexual reproduction.

ii. Complete the chart :



iii. Answer the following questions:

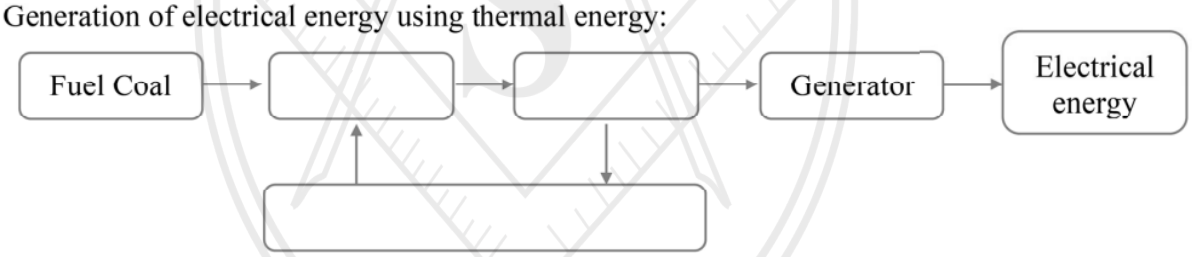
a. Define vestigial organs.

b. Write names of any *two* vestigial organs in human body.

c. Write the names of any *two* vestigial organs which are non-functional in human beings but functional in other organisms.

iv. Complete the following flow chart:

a. Generation of electrical energy using thermal energy:



b. Energy transformation in thermal power plant:



v. Complete the paragraph with the help of words given in the bracket:
(Lactobacillus cremoris, Protease, Cow, Vegetarian, microbiological rennet, Geobacter, Saccharomyces)

Cheese is produced on large scale from the abundantly available _____ milk all over the world. First chemical and _____ tests of milk are performed. Some colours and microbes like Lactobacillus lactis, _____ and Streptococcus thermophilus are mixed with milk. It imparts sourness to the milk. After this, to impart the dense texture, whey needs to be removed.

An enzyme _____ obtained from alimentary canal of cattle was being traditionally used earlier. However an enzyme _____ obtained from fungi is used at present to produce _____ cheese.

vi. Write a short note on the importance of medicinal plants.

vii. Explain the importance of good communication with others.

viii. Identify the type of disaster and write its effect:

a. Terrorism b. Forest fire c. Theft

Q.3. Answer the following questions (any *five*): **[15]**

i. Define heredity. Explain the mechanism of hereditary changes.

ii. Write any *four* stages of mitosis and explain any *two* of them.

iii. Explain with examples types of asexual reproduction in unicellular organism.

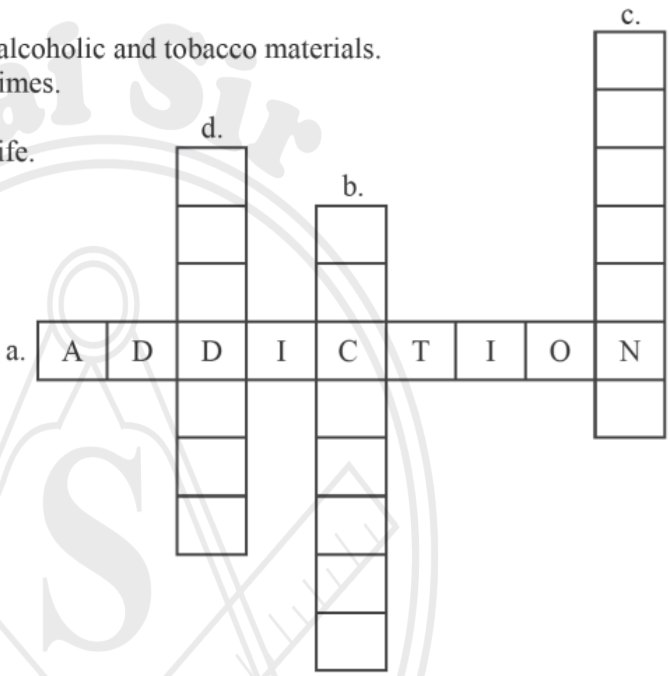
iv. Which fuel is used in thermal power plant? Write any *two* problems associated with this type of power generation.

v. Write *three* characteristics of phylum-Mollusca.

vi. What are the constituents of acid rain? What are its *two* effects on earth's surface?

vii. Solve the following crossword:

a. Continuous consumption of alcoholic and tobacco materials.
b. This app may cause cyber crimes.
c. A remedy to resolve stress.
d. Requirement for stress free life.



viii. Write down the reasons, effects and remedial measures taken for any *one* disaster seen or heard by you.

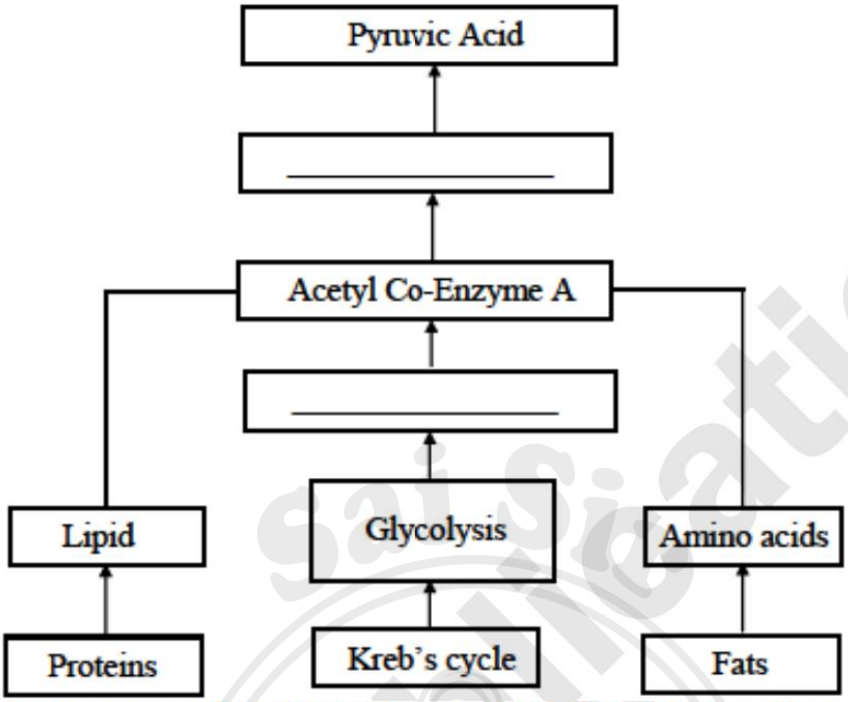
Q.3. Solve the following questions (any *five*): **[15]**

i Write any *three* characteristic features of class "Aves".

ii. (a) What are vestigial organs?
(b) Write *two* names of some vestigial organs in human body.
(c) Write the names of those animals in whom same organs are used? Give *two* examples.

iii. How energy is formed from oxidation of carbohydrates, fats and proteins?
Correct the diagram given below:

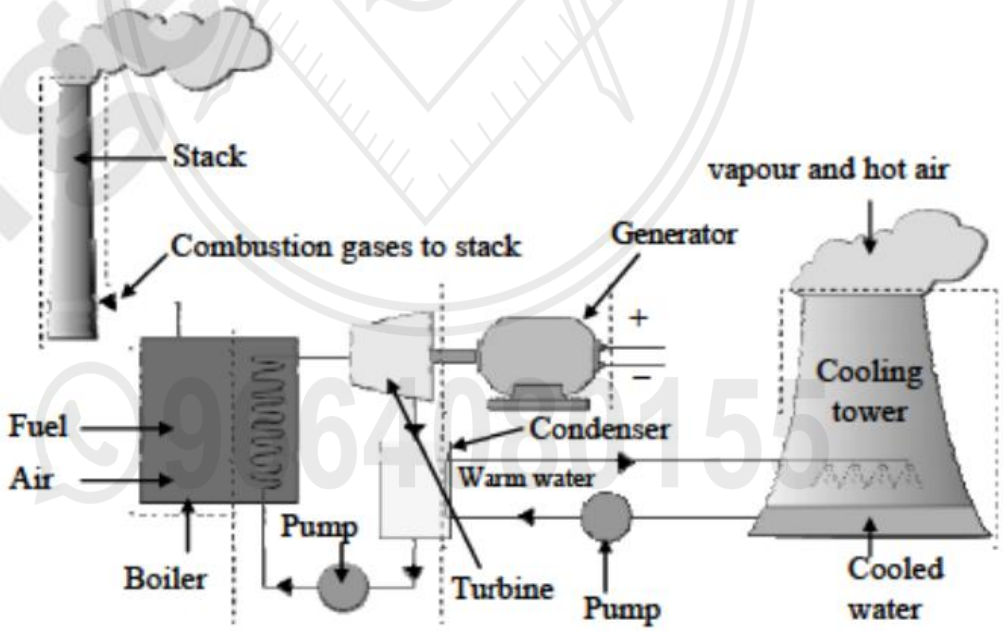
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iv. What is the meaning of the following symbols? Write your role accordingly.



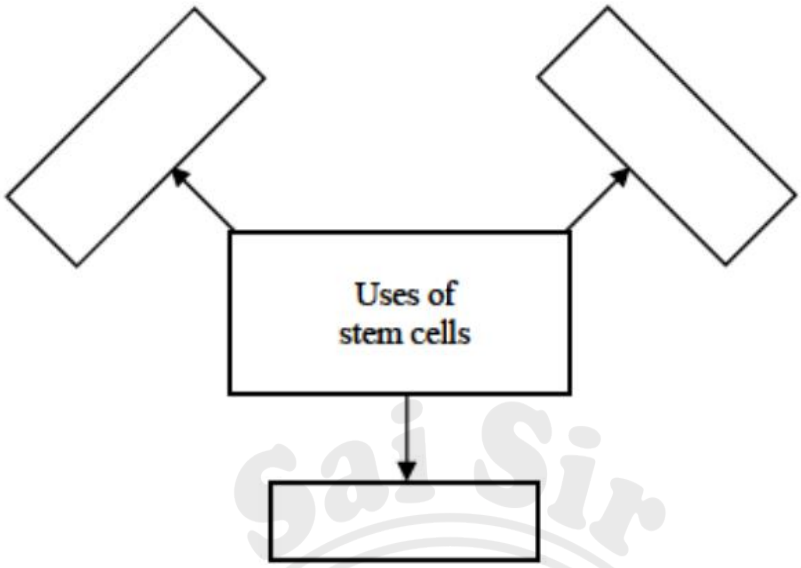
v. Observe the diagram and answer the following questions:



(a) Which type of energy is created in the above diagram?
(b) Which type of fuel is used in power plant?
(c) State *one* problem created in such type of power plant.

vi. Explain the importance of Biopesticides in organic farming.

vii. Complete the following conceptual picture and write its uses in treatment of various diseases:



viii. Which are *three* objectives of disaster management?

Q.3. Answer any *five*: **[15]**

i. (a) What are vitamins?
(b) Classify them according to their solubility.
(c) Give one example of each type as per above classification.

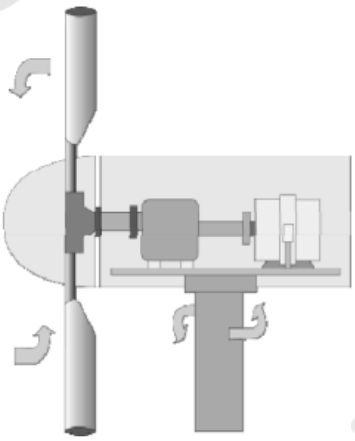
ii. Explain the following terms:
(a) Stem cells
(b) Cloning
(c) Genetically modified crops.

iii. Complete the given paragraph by filling the blank spaces from the options given in the bracket.
[oxygen, pyridines, mechanical, CO_2, petroleum, fatal, polyester, *Nocardia*]

Spilling of _____ oil occurs in ocean due to various reasons. This oil may prove _____ and toxic to aquatic organisms. It is not easy to remove the oil layer from surface of water by _____ method.
However, bacteria like *Pseudomonas* spp. and *Alcanovorax borkumensis* have to ability to destroy the _____ and other chemicals. Hence, these bacteria are used to clear the oil spills. These are called as hydrocarbonoclastic bacteria (HCB). HCB decompose the hydrocarbons and bring about the reaction of carbon with _____, _____ and water is formed in this process.

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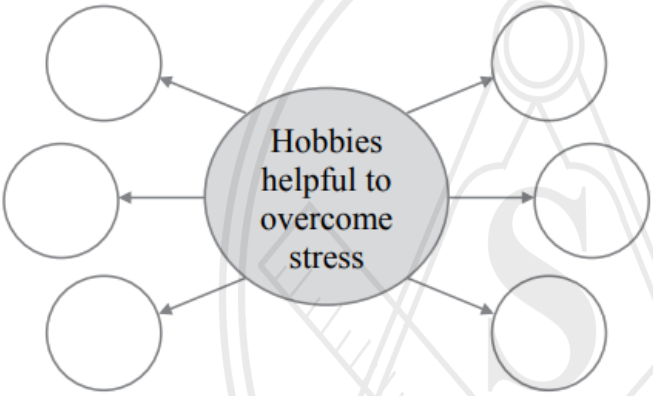
iv. Observe the given picture and answer the questions.



Questions:

(a) Identify the given diagram.
(b) What is the source of energy in this project?
(c) Why this source is supposed to be ecofriendly?

v. Complete the following chart:



vi. Write names of any *six* materials which are to be in the first aid box.

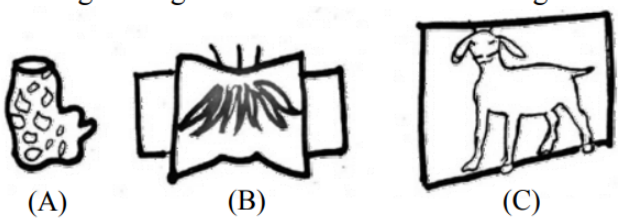
vii. (a) Define vestigial organs.
(b) Write names of any *two* vestigial organs in the human body.
(c) Write name of those animals in which these vestigial organs are functional.

viii. Read the statements and answer accordingly:
(a) Calcareous spines are present on the body. Tube feet are used for locomotion and capturing prey also.
– Identify the phylum and give *one* example.
(b) I live in your small intestine. Pseudocoelom is present in my thread like body.
– Identify the phylum and give *one* example.
(c) My body is spindle shaped. I respire with the help of gills.
– Identify my class and give *one* example.

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Q.3. Answer the following questions (any *five*): **[15]**

i. Observe the given figures and answer the following:



(A) (B) (C)

Identify the types of body symmetry and give *one* example of each apart from the given figure.

ii. Write a short note on — The types of Biodiversity.

iii. Complete the given chart:

Sr. No.	Body Constituents	Proteins/Amino Acids
1.	Blood	……..
2.	……..	Ossein
3.	Skin	……..
4.	……..	Insulin
5.	Muscle	……..
6.	……..	Various proteins of cell membrane

iv. Rearrange and write proper alphabetical sequence only and complete the given blanks:

(A)



Entire plant is developed from the leaf pieces containing genes of human pathogen.

(B)
Inject virus in the plant



_____

(C)



Consumption of raw potatoes helps to develop immunity against that pathogen

(D)



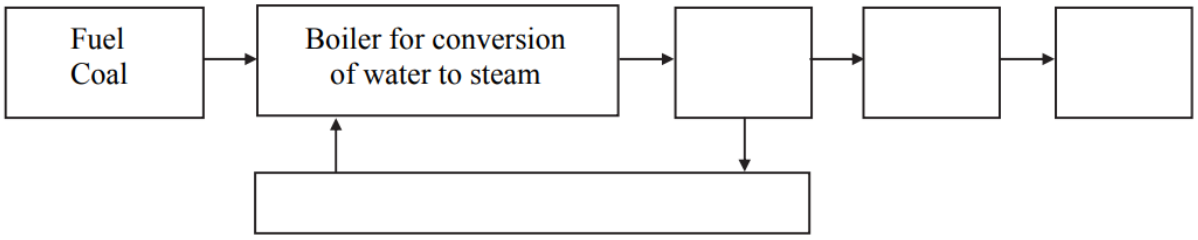
Virus infects the pieces of potato leaves.

(E)

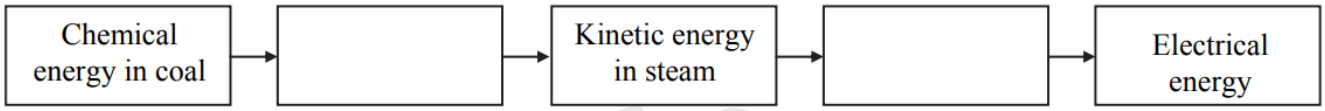


_____

v. (a) Complete the given flow chart for electrical energy production based on thermal power plant.



(b) Complete the flow chart for energy transformation in thermal power plant.

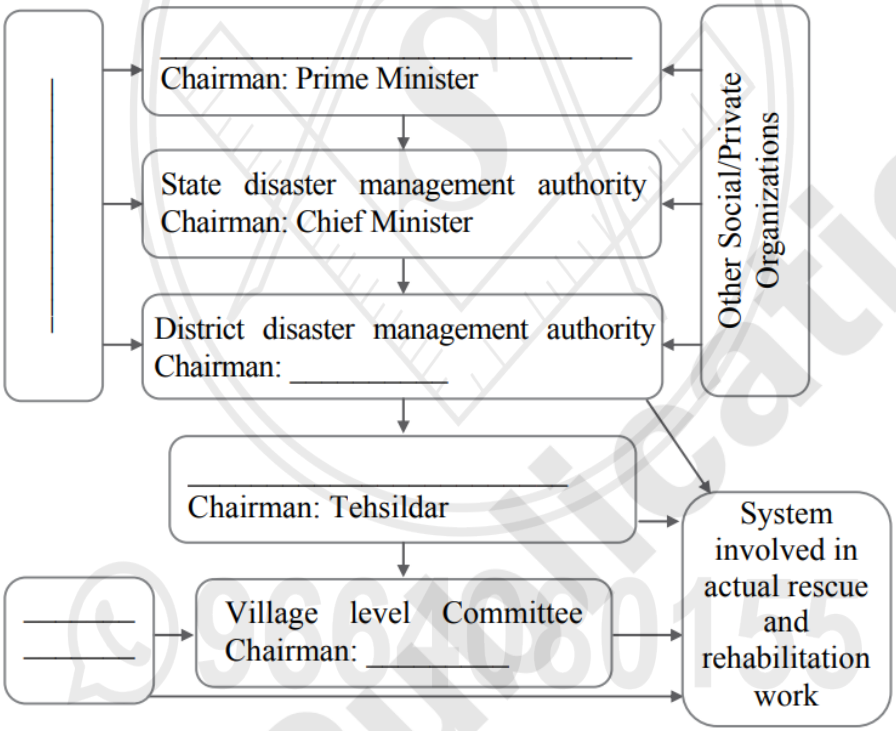


vi. Complete the paragraph with the help of words given in the bracket:

(nutritive, ethanol, salt, actinomycetes, fermentation, carbon dioxide, lactic acid, *Saccharomyces cerevisiae*)

Different types of breads are produced from flour of cereals. Dough is formed by mixing of baker's yeast - ……., water, …….. and other necessary materials with flour. Due to …… of carbohydrates by yeast, sugar is converted into …… and …… . Dough rises up due to CO_2 and the bread becomes spongy. Bread and other products produced with the help of yeast become …… .

vii. Fill in the blanks in the structure of Disaster Management Authority.



viii. (a) Write any *two* advantages and *two* problems associated with hydroelectric power plant.

(b) Is hydroelectric power generation environment friendly? What is your opinion?

Q.3. Answer the following questions (any *five*): **[15]**

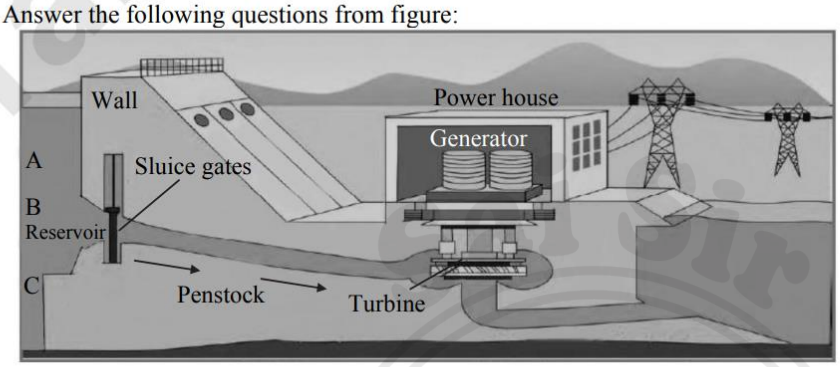
i. Darwin's theory of natural selection.

ii. Complete the following chart:

Sr. No.	Proteins	Name of the Organs
1.	Melanin, Keratin	_____
2.	_____	Pancreas
3.	Haemoglobin, antibodies	_____

iii. Write the factors affecting environment.

iv. Answer the following questions from figure:



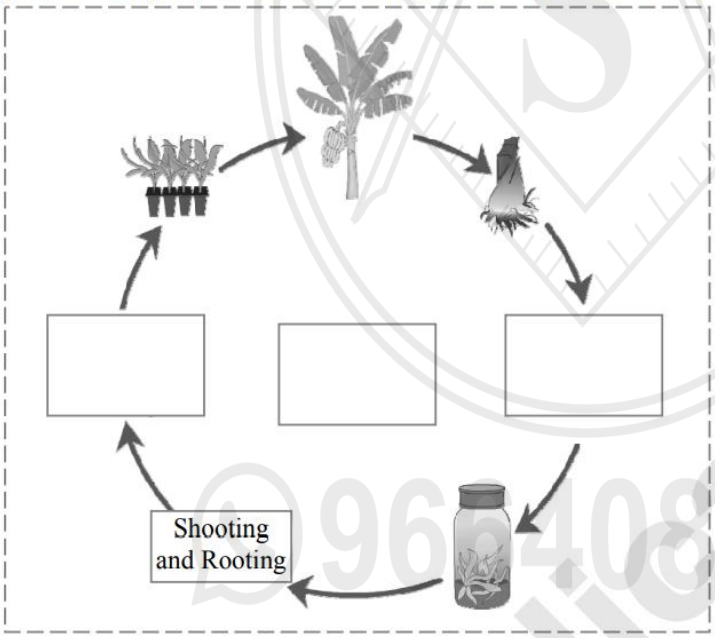
(a) With reference to point B, potential energy of how much water reservoir in the dam will be converted into kinetic energy?

(b) What will be the effect on electricity generation, if the channel taking water to turbine starts at point A?

(c) What will be the effect on electricity generation, if the channel taking water to turbine starts at point C?

v. Cockroach, Frog, Sparrow, Star fish, from these animals which can regenerate its broken body part?

vi. Complete the diagram showing various processes in tissue culture.



vii. Which fuels are obtained from biomass?

viii. Complete the following passage by using appropriate words given in brackets:
(Delhi, 12, 2005, army, National Disaster, rescue work, State Reserve Police, 2015)

National Disaster Response Force has been established as per the Disaster Management Act, _____ Divisions of this force are working in army. Overall, _____ divisions are working in the country. Its headquarter is in _____ and it is in action all over the country with the help of _____. In Maharashtra, _____ Response Force is in action through State Reserve Police Force. Personnel of this force have substantial contribution in _____ in disasters like cyclones, cliff-sliding, building collapse, etc.

Q. 3. Answer the following questions: (*any five*) **[15**

i. Redraw the table taking into account the relation between entries in the three columns.

Column I	Column II	Column III
Coal	Kinetic energy	Nuclear power plant
Uranium	Thermal energy	Wind electricity plant
Wind	Nuclear energy	Thermal plant

ii.



(a) Identify the class of the animals shown in the figure.
(b) Write two characteristics of that class.

iii. Which precautions are necessary for proper decomposition of domestic waste?

iv. Write the importance of medicinal plants.

v. What will you do? Why?
(a) You are spending more time on Internet/mobile games, phone, etc.
(b) You have to use free space around your house for good purpose.
(c) Your brother studying in Std. XII has developed stress.

vi. The following are some picture of disasters. Which precautions would you take during these disasters?



(a) (b) (c)

vii. Explain the concept of connecting links with two examples.

viii. (1) Write two sources of lipids.
(2) How much energy is obtained from lipids?
(3) What is produced after digestion of lipids?

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Q.3. Answer the following (any *five*): **[15]**

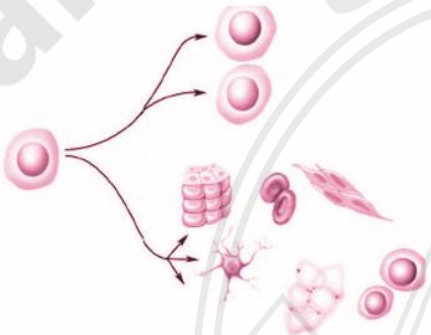
i. Explain the meanings of the following symbols:

(1)  (2)  (3) 

ii. Write any *three* characteristics of class reptilia.

iii. (1) Which substance is used to produce cheese?
(2) Which enzyme was used earlier for cheese production?
(3) Which enzyme is used to produce vegetarian cheese?

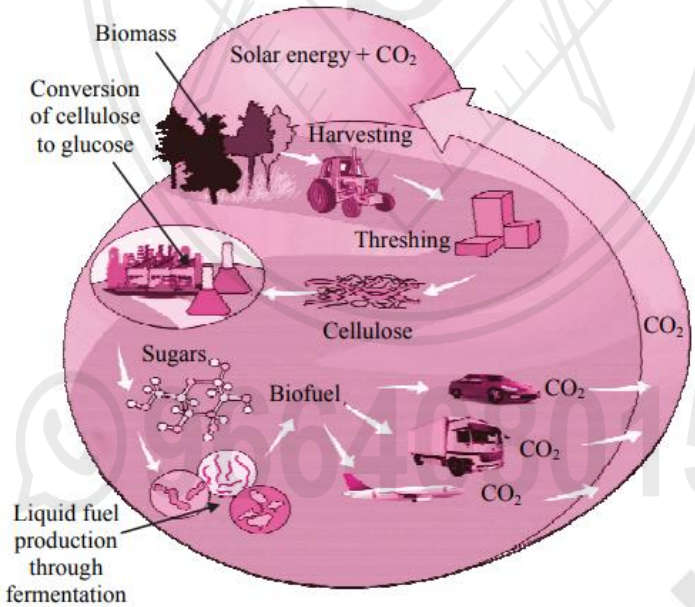
iv. (1) Which process is shown in the given diagram?
(2) What is the importance of this process?
(3) Which organs can be transplanted by this process?



v. What is meant by disaster? Write any *two* examples of each natural and man-made disaster.

vi. Write the objections raised against Darwin's theory of natural selection.

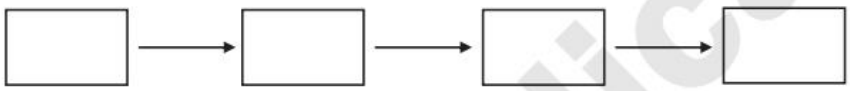
vii.



(1) Which process is shown in the above given picture?

(2) Give *two* examples for liquid fuels and solid fuels obtained by this process.

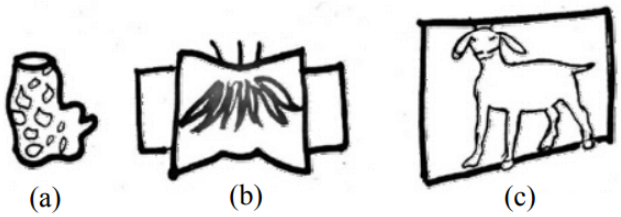
vi. (1) Complete the stages in electric generator using wind energy.



(2) Write limitations in an electric generator using wind energy.

Q.3. Answer any *five* questions from the following. **[15]**

i.



(a) (b) (c)

Identify and explain the above different types of symmetry.

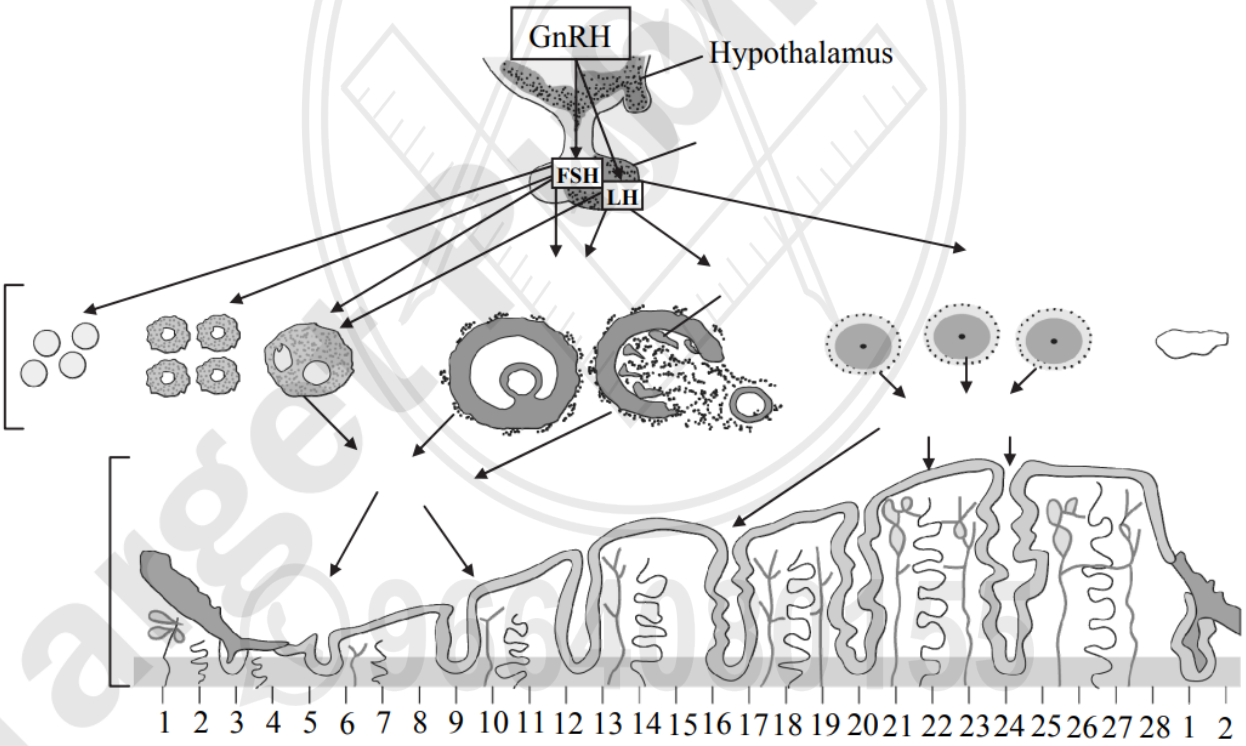
ii. Write any *six* factors affecting the social health.

iii. Complete the following chart:

	Substance obtained by microbial processing	Roles
(a)	Citric acid	_____
(b)	Ascorbic acid	_____
(c)	Beta carotene	_____
(d)	Glycolipids	_____
(e)	Vanillin	_____
(f)	Xylitol	_____

iv. Explain the *three* different levels of Biodiversity.

v. Observe the following figure and answer the questions:



a. Identify the process in above figure and after how many days it will repeat again?

b. Write the names of hormones involved in this process.

vi. What are the advantage of hydroelectric power generation?

vii. a. Define vestigial organs.
b. Write name of any *two* vestigial organs in human body.
c. Explain how one human vestigial organ is functional in another animal.

viii. What will you do in the following cases and why?
a. Child of your neighbour is addicted to tobacco chewing.
b. You have to use free space around your home for good purpose.
c. Your friend has developed the hobby of snapping selfies.

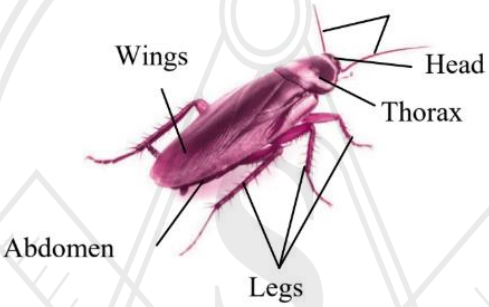
Q.3. Solve the following questions (Any five): **[15]**

i. Explain the importance of Anatomical evidences with examples.

ii. What will you do? Why?
a. Child of your neighbor is addicted to tobacco chewing.
b. Your friend has developed the hobby of snapping selfies.
c. Your sister has become incommunicative. She prefers to remain alone.

iii. Which precautions are necessary for proper decomposition of domestic waste?

iv. Observe the following diagram. Write the answers of the following questions.



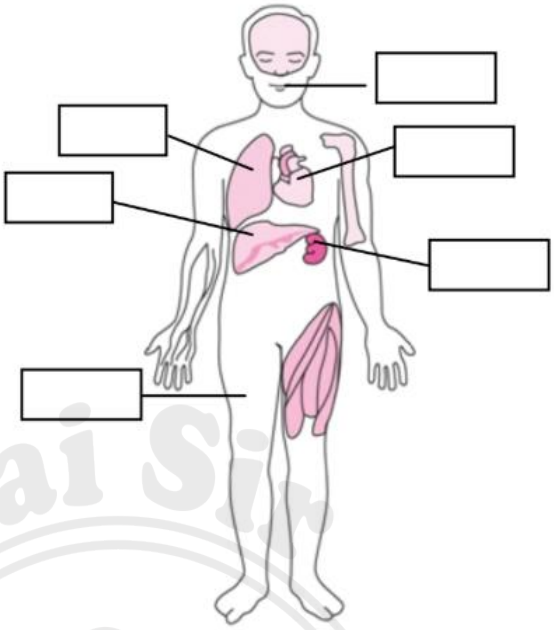
a. To which phylum does the animal included in the diagram belong?
b. What is the exoskeleton made up?
c. What is the symmetry?

v. Explain the following concepts in short:
a. Surrogacy
b. In Vitro Fertilization (IVF)
c. Sperm Bank

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vi. Label the body organization of human in the following figure:



vii. Make a table based on forms of energy and corresponding devices:

	Forms of Energy	Devices
a.	Electric	_____
b.	Mechanical	Sewing machine, Bicycle
c.	Thermal	_____
d.	_____	Solar cooker, Solar heater

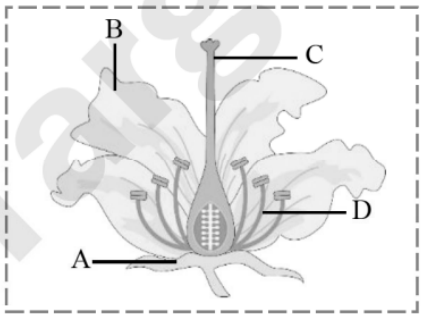
viii. Complete the paragraph using proper words:
(Mechanical, *Rhizobium*, Aquatic, Toxic, CO_2, Nitrogen, *Pseudomonas*, *Amoeba*, Bacteria, Hydrocarbons)
Spilling of petroleum oil occurs in ocean due to various reasons. This oil may prove fatal and toxic to _____ organisms. It is not easy to remove the oil layer from surface of water by _____ method. However, bacteria like _____ spp. and *Alcanivorax borkumensis* have the ability to destroy the pyridines and other chemicals. Hence, these _____ are used to clear the oil spills, These are called as hydrocarbonoclastic bacteria (HCB). HCB decompose the _____ and bring about the reaction of carbon with oxygen. _____ and water is formed in this process.

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Q.4. Answer the following questions (any *one*): **[5]**

i. Observe the diagram and answer the questions:



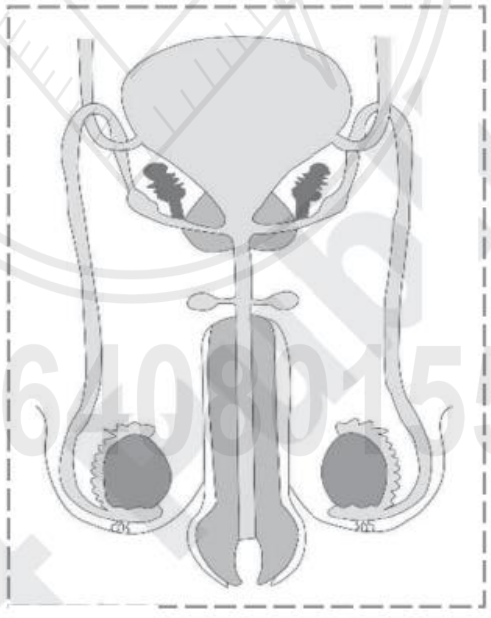
a. Label the parts A, B, C, D shown in the above diagram.
b. Write name of any *one* type of whorl.
c. Write any *two* components of Androecium.
d. Write any *two* components of Gynoecium.

ii. Draw the flow chart showing step by step energy transformation in the following power plants:
a. Thermal Power Plant
b. Nuclear Power Plant
c. Solar Power Plant

Q.4. Answer the following questions (any *one*): **[5]**

i. a. Write the names of any six factors affecting social health.
b. What will you do ? Why ?
Your brother studying in XII has developed the stress.

ii. Observe the diagram given below and answer the questions:

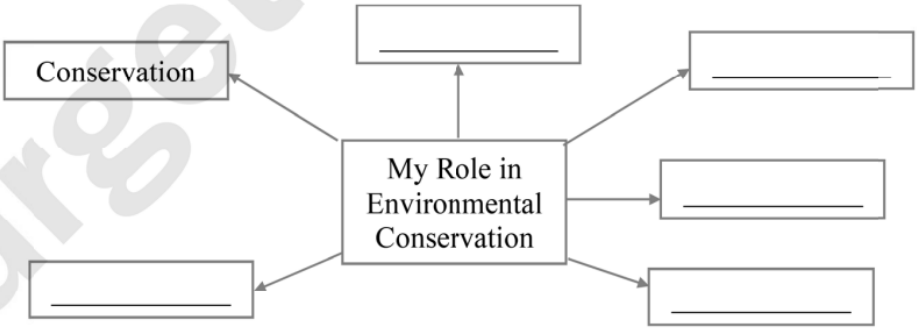


a. Write the name of the reproductive system in the above diagram.
b. Name any two glands in the above diagram.
c. Mention any one duct in the above system.
d. What is the length of a sperm?
e. Which hormone is secreted by the testes?

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Q.4. Answer the following questions (any *one*): **[5]**

i. Complete the following flow chart explaining my role in environmental conservation:



ii. Observe the following picture. Write the answers of the following questions:



Fig. A Fig. B

a. Identify the class of animals shown in above picture.
b. Which similarities are shown in above animals from the adaptation point of view?
c. Why these animals are included in different classes inspite of their similarities?

Q.4. Answer the following questions (any *one*): **[5]**

i. What is biodiversity? Write any *four* steps to conserve biodiversity.

ii. What is stem cell? Write any *four* uses of stem cells.

Q.4. Solve the following questions (any *one*): **[5]**

i. (a) Draw well labelled diagram of female reproductive system. 2
(b) Which type of hormones are secreted in female reproductive system? 1
(c) When does menopause period stop? 1
(d) How many ovaries are there in female foetus at the time of birth? 1

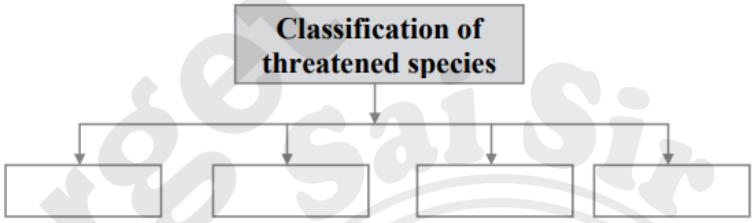
ii. Give *two* examples of each:
(a) Hobbies to reduce stress. 1
(b) Diseases endangering the social health. 1
(c) Physical problems arising due to excessive use of mobile phones. 1
(d) Activities under the jurisdiction of cyber crime laws. 1
(e) Write problems due to alcoholism. 1

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Q.4. Answer any *one*: **[5]**

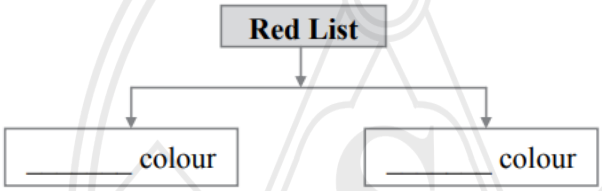
i. Answer the following questions based on human male reproductive system:
- (a) In which organ sperms are formed?
- (b) What is the length of a sperm?
- (c) What is the work of vas deferens?
- (d) By which type of cell division, sperms are formed?
- (e) Name any *two* unpaired organs of male reproductive system.

ii. Answer the following questions based on environmental conservation and biodiversity:
- (a) Complete the flow chart: 2



- (b) How can biodiversity be conserved? Give any *four* points. 2
- (c) Complete the flow chart: 1

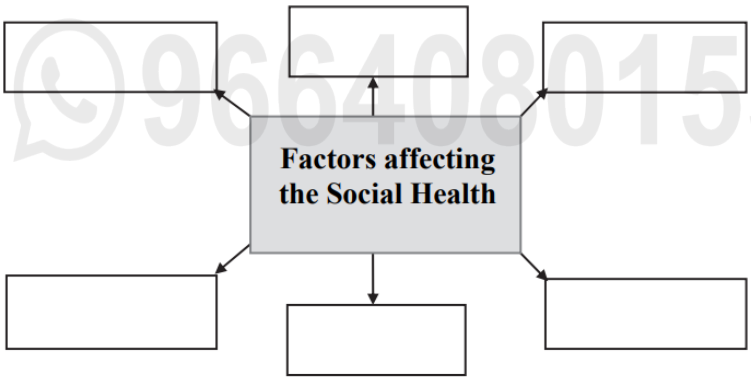
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Q.4. Answer the following (any *one*): **[5]**

i. Answer the following questions in complete sentence based on female reproductive system:
- (a) How many immature oocytes are present at the time of birth in the ovary of female foetus?
- (b) What is ovulation?
- (c) What is menopause?
- (d) Draw scientifically correct diagram of female reproductive system.
- (e) Label the following parts:
  - (i) Ovary
  - (ii) Uterus

ii. (a) Complete the flow chart: (3)



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(b) Observe the following pictures and answer the following: (2)

(i) Whether the incidence shown in the picture is rational or irrational? Justify your answer.



(ii) Identify the picture. What is the punishment given to the person shown in the picture?

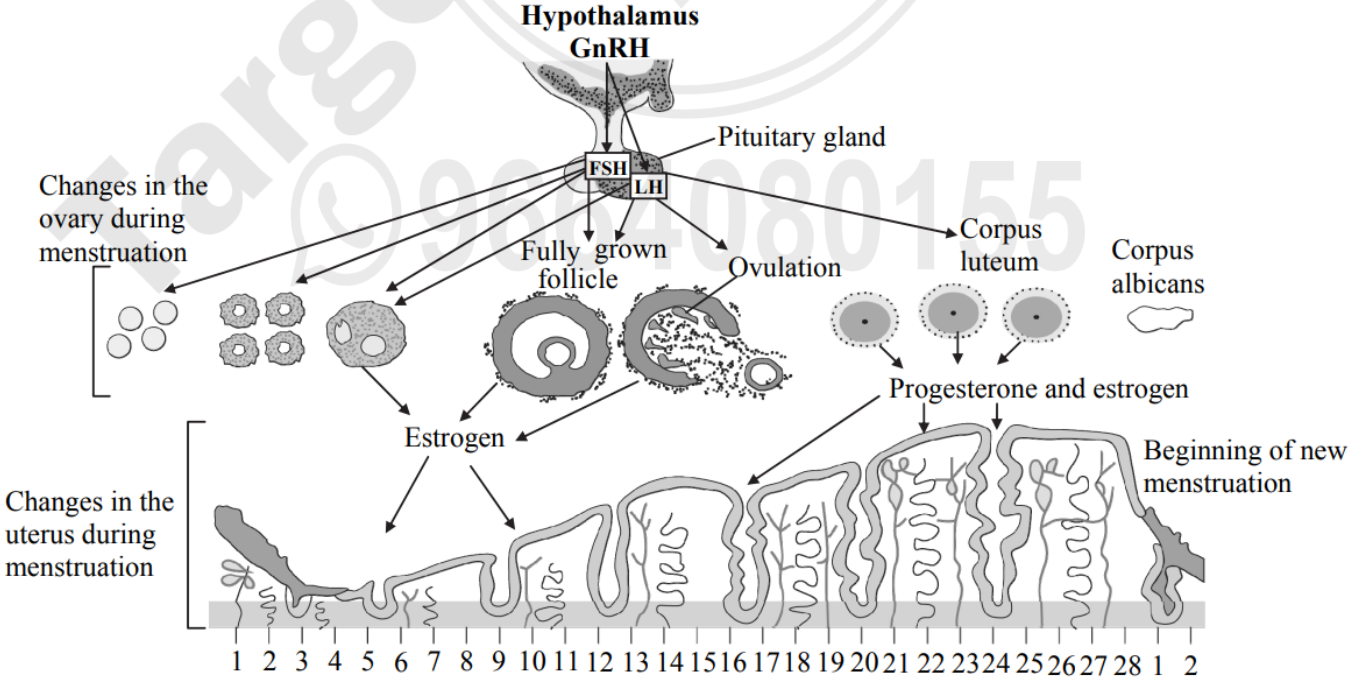


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Q.4. Answer any *one* of the following questions: **[5]**

i. Answer the following questions by observing the diagram of menstrual cycle:



Q. 4. Answer the following questions: (*any one*) **[5]**

i. Draw a neat and labelled diagram of female reproductive system and give the functions of:
(a) Oviduct (b) Ovary (c) Uterus

ii. Explain the meanings of the following symbols:

 (1)	 (2)	 (3)	 (4)	 (5)

Q.4. Answer any *one* of the following: **[5]**

i. a. Sketch and label the essential and accessory whorls of flower.
b. What is pollination?
c. Give any *two* examples of agents of pollination.

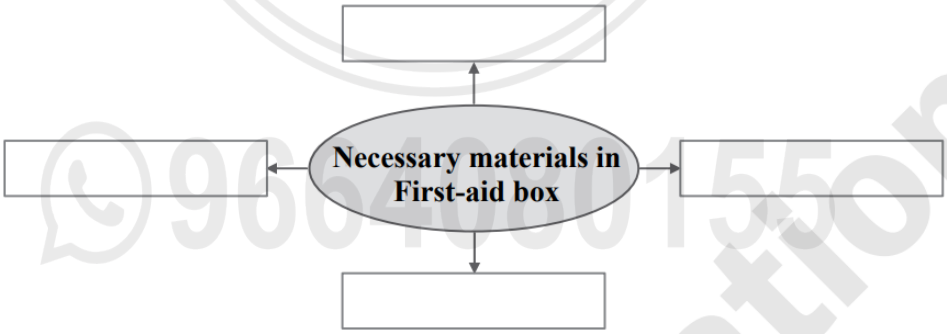
ii. What will you do?
(1) You are spending more time on internet.
(2) Child of your neighbour is addicted to tobacco chewing.
(3) Your sister has become incommunicative.
(4) You have to use free space around your home for good purpose.
(5) Your brother studying in XII has developed the stress.

Q.4. Solve any *one* of the following: **[5]**

i. a. What is meant by disaster management? [1]

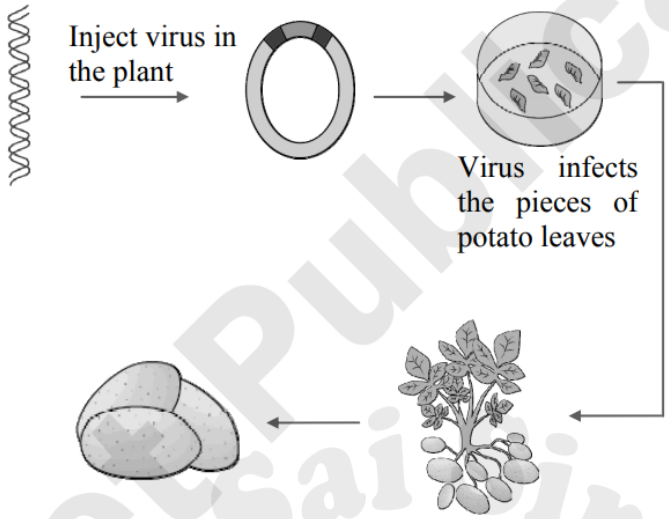
b. Classify the following activities into pre-disaster management and post-disaster management: [2]
(i) Identifying the pro-disaster areas.
(ii) Quick establishment of help centre.
(iii) Participation of preferably local people saved from the disaster in arranging the help to victims.
(iv) Getting special training for disaster management.

c. Complete the diagram: [2]



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ii. Observe the figure and answer the following questions:



a. Identify the process given in the above figure. [1]
b. Write the importance of above process. [2]
c. Write any *two* benefits of Biotechnology. [2]

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Q.4. Solve the following questions (Any one): **[5]**

i. Attempts at various levels are performed for conserving environment. Which role would you like to perform. Give two actions each:

a. Prevention b. Control c. Production
d. Awareness e. Conservation

ii. a. What is Biotechnology?
b. Give one use of Biotechnology.
c. Give one commercial use of Biotechnology.
d. Write two bacterial examples of biofertilizer.
e. Write two names of crops genetically developed.

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