

BOARD QUESTION PAPER: MARCH 2019

SCIENCE AND TECHNOLOGY PART - 2

Time: 2 Hours

Total Marks: 40

Note:

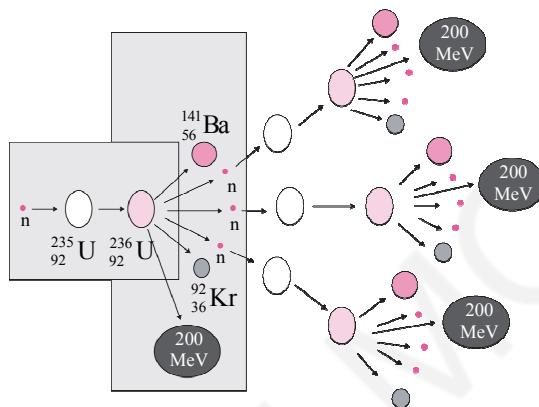
- i. All questions are compulsory.
- ii. Draw scientifically correct labelled diagrams wherever necessary.
- iii. Start writing each main question on new page.
- iv. Figures to the right indicate full marks.
- v. For each MCQ (i.e. Q. No. 1-B) evaluation would be done for first attempt only.
- vi. For each MCQ correct answer must be written along with its alphabet.

Eg.: (i) (A)....., (ii) (B), (iii) (C)

1. (A) Solve the following questions.

- i. Identify the process shown in figure and name it.

[5]
(1)



- ii. Pranav and Pritee are twins in your class. They belong to _____ twins type. (1)
iii. There is a oil layer on the water surface of river in your area. What will you do? (1)
iv. Fill in the boxes with the help of the given clue:
Continuous consumption of alcohol and tobacco material _____ (1)

A						O	
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- v. Find out the correlation:
White revolution : Increase in dairy production :: Green revolution : _____. (1)

(B) Choose the correct alternative and rewrite the statements:

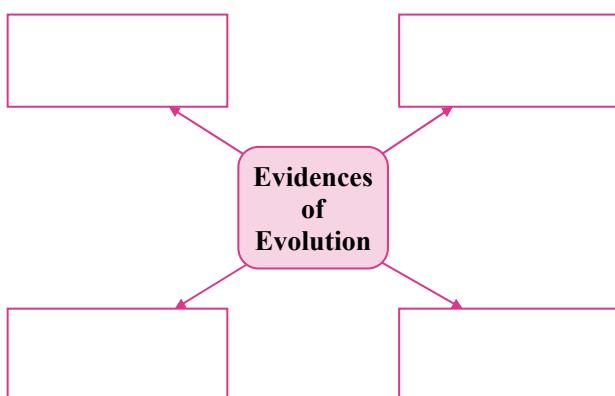
[5]

- i. Somatic and stem cells undergo _____ type of division.
(A) meiosis (B) mitosis
(C) budding (D) cloning
- ii. Which of the following is a man-made disaster?
(A) Earthquake (B) Flood
(C) Meteoric (D) Leakage of toxic gases
- iii. In a food chain autotrophic plants are present at the _____ level.
(A) Tertiary nutrition (B) Secondary nutrition
(C) Producer (D) Apex
- iv. _____ is a cold blooded animal.
(A) Bat (B) Snake
(C) Rabbit (D) Elephant
- v. _____ is a connecting link between annelida and arthropoda.
(A) Duck-billed platypus (B) Peripatus
(C) Lungfish (D) Whale

2. Solve any five of the following questions:

[10]

- i. Complete the following chart:



- ii. Draw a neat diagram of the structure of chromosome and label the parts:

- a. Centromere b. p-arm.

- iii. What are the advantages of hydroelectric power generation?

- iv. State any four benefits of animal classification.

- v. State any four objectives of disaster management.

- vi. Give scientific reason:

Microbial enzymes are used instead of chemical catalyst in a chemical industry.

- vii. Read the following extract and answer the questions that follow:

A liberal view behind the concept of organ and body donation is that after death our body should be useful to other needful persons so that their miserable life would become comfortable. Awareness about these concepts is increasing in our country and people are voluntarily donating their bodies.

Life of many people can be saved by organ and body donation. Blinds can regain their vision. Life of many people can be rendered comfortable by donation of organs like liver, kidneys, heart, heart valves, skin etc. Similarly, body can be made available for research in medical studies. Many government and social organizations are working towards increasing the awareness about body donation.

- a. What is the liberal view behind the organ and body donation?

- b. Name any four organs that can be donated.

3. Solve the following questions (any five):

[15]

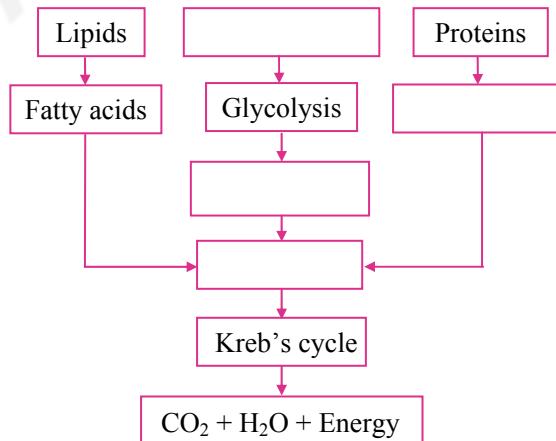
- i. Answer the following questions:

- a. What do you mean by central dogma?

- b. What is transcription?

- c. What is meant by triplet codon?

- ii. Complete the following chart and state which process of energy production it represents:



- iii. a. Playing games on mobile while eating is right or wrong. Justify.



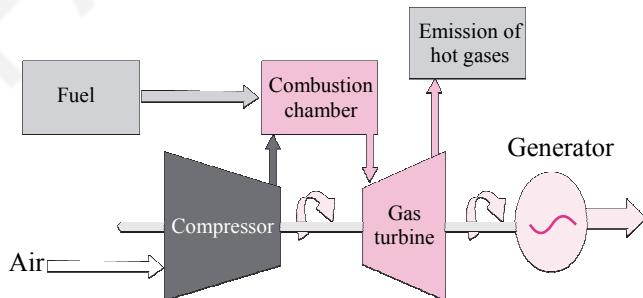
- b. What do you conclude from the following picture?



- c. Observe the following picture and state what can be the outcome?

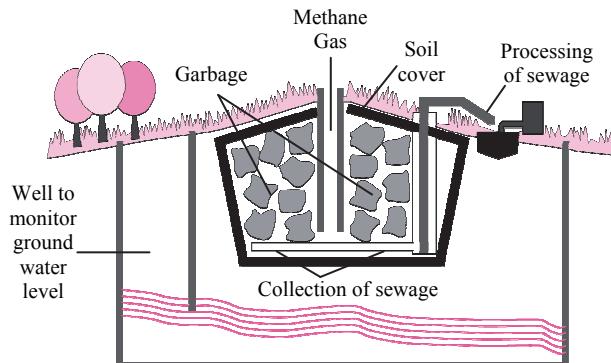


- iv. Observe the diagram and answer the questions:



- a. Which energy is generated from the power plant?
b. State its source.
c. Which is more ecofriendly — Power generation from coal or Power generation from natural gas? Why?

- v. Identify my class/phylum and give one example of it:
- I have mammary glands and exoskeleton in the form of hair.
 - We form the highest number of animals on the planet. We have bilateral symmetry and our exoskeleton is in the form of chitin.
 - I live in your small intestine, my body is long and thread like and pseudocoelomate.
- vi. Observe the following figure and answer the questions:



- a. Identify the process shown in the figure.
- b. Explain the process in short.
- vii. a. What is biotechnology?
- b. Explain any two commercial applications of it.
- 4. Solve any one of the following questions:** [5]

- i. a. Identify the following symbols and state their significance: (2)

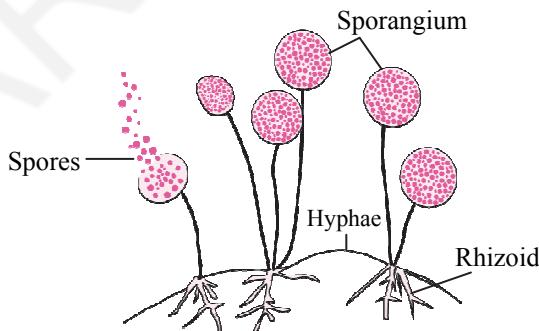


(1)



(2)

- b. How can biodiversity be conserved? (3)
- ii. Answer the following questions:
- "Gender of child is determined by the male partner of couple." Draw a diagram explaining the above statement. (2)
 - Prepare a slogan for campaign against female foeticide. (1)
 - In the following figure, explain how new fungal colonies of mucor are formed: (1)



- d. Identify and state the type of reproduction represented in the above figure. (1)

BOARD QUESTION PAPER: July 2019

Science and Technology Part - 2

Time: 2 Hours

Total Marks: 40

Note:

- i. Solve the questions in sequence.
- ii. Draw diagrams wherever necessary.

1. (A) Solve the following questions:

- i. Match the columns:

[5]
(2)

	Column 'A'	Column 'B'
a.	Haemoglobin	1. Skin
b.	Ossein	2. Blood
		3. Bones

- ii. Find odd one out:
Diabetes, Anaemia, Leukemia, Thalassemia (1)
- iii. Write the correct co-relation:
Transverse Binary Fission : *Paramecium* :: Longitudinal Binary Fission : (1)
- iv. Who am I?
I have suckers. I am blood sucking ectoparasite and my body is segmented. (1)

(B) Choose the correct alternative and rewrite the sentences:

[5]
(1)

- i. Calcareous spines are present on the body of _____ animal.
(A) Fish (B) Snail
(C) Sponge (D) Star fish
- ii. _____ beverage is obtained by fermentation of apple juice.
(A) Cider (B) Wine
(C) Coffee (D) Cocoa
- iii. _____ is man-made disaster.
(A) Earthquake (B) Flood
(C) Leakage of poisonous gas (D) Meteorite
- iv. _____ microbes provide organic manure to the paddy fields.
(A) Azolla (B) Anabaena
(C) Azotobacter (D) Acetobacter
- v. The length of a sperm is about _____ micrometers.
(A) 400 (B) 5
(C) 60 (D) 600

2. Answer the following questions (any five):

[10]
(2)

- i. Hydroelectric energy, solar energy and wind energy are called renewable energies. Why? (2)
- ii. Complete the following table: (2)

	Plant/Microbes	Function
1.	<i>Pteris vitata</i>	-----
2.	<i>Pseudomonas</i>	-----
3.	-----	Absorption of uranium and arsenic
4.	-----	Absorption of radiations of nuclear waste

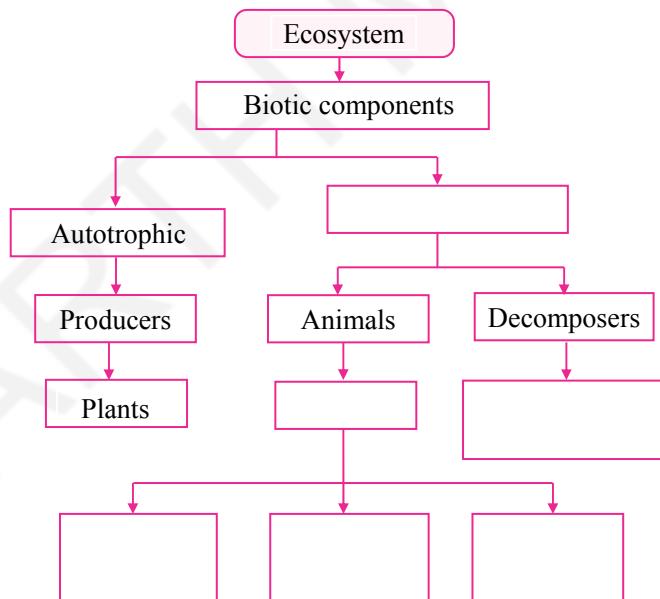
- iii. Define vestigial organs. Write any two names of vestigial organs in human body. (2)
- iv. Despite of various diagnostic tests, a couple could not have a child. In this situation, which remedies will you suggest? (2)
- v. Write any four harmful effects of consumption of alcoholic drinks on human body. (2)
- vi. Complete the following table: (2)

Source	Microbe	Amino Acid
Sugar molasses and salt	-----	Citric acid
-----	<i>Lactobacillus delbrueckii</i>	-----
Corn steep liquor	<i>Aspergillus itaconius</i>	-----

- vii. First aid training is essential. Why? (2)

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

- i. What will you do? Why? (3)
- Child of your neighbour is addicted to tobacco chewing?
 - Your friend has developed the hobby of snapping selfies.
 - Your sister has become incomunicable. She prefers to remain alone.
- ii. a. Write main types of vitamins. (3)
- Name water soluble vitamins.
 - Name fat soluble vitamins.
- iii. Complete the flow chart: (3)



- iv. a. What are the meaning of the following symbols? Write your role accordingly. (3)



A



B



C

- v. The building in which you are residing has caught fire on the ground floor. What necessary rescue steps will you take? (3)
- vi Explain with suitable examples importance of anatomical evidences in evolution. (3)
- vii Answer the following questions:
- In our country, there seems to be lack of awareness regarding reproductive health. Why? (1)
 - Write the symptoms of disease gonorrhea. (1)
 - What precautions will you take maintain reproductive health? (1)
4. **Answer any one of the following questions:** [5]
- Identify the class of given animals and write one characteristic of each animal:
a. Kangaroo b. Penguin c. Crocodile
d. Frog e. Sea-horse
 - Draw schematic of power plant based on natural gas and answer the following questions:
 - At which place natural gas power plant is situated in Maharashtra?
 - How is pollution reduced in natural gas based power plant?
 - Give two examples of eco-friendly electricity process.

BOARD QUESTION PAPER: MARCH 2020

Science & Technology Part - 2

Time: 2 Hours

Total Marks: 40

Note:

- i. All questions are compulsory.
- ii. Use of calculator is not allowed.
- iii. The numbers to the right of the questions indicate full marks.
- iv. In case of MCQs [Q. No. 1(A)], only the first attempt will be evaluated and will be given credit.
- v. For every MCQ, the correct alternative (A), (B), (C) or (D) with sub-question number is to be written as an answer.
For e.g. (i) (A), (ii) (B), (iii) (C).
- vi. Scientifically correct, labelled diagrams should be drawn wherever necessary.

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

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?

Q.2. (A) Give Scientific Reasons. (Any two)

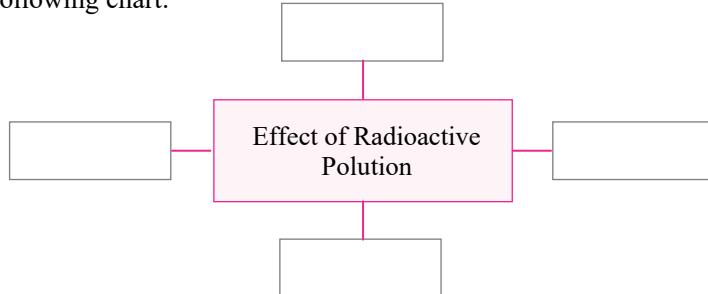
[4]

- 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.

Q.2. (B) Solve the following questions. (Any three)

[6]

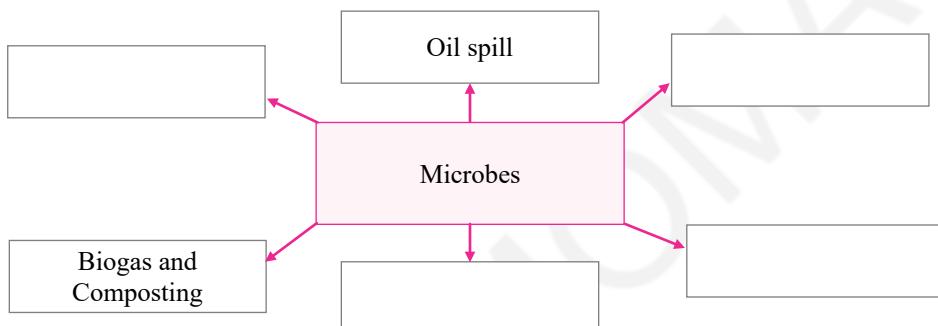
- i. Complete the following chart:



- ii. Distinguish between Aves and Mammalia.
iii. By observing given picture, write any two effects of this disaster:



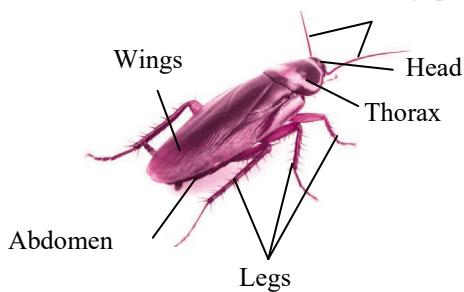
- iv. Explain four ways to minimize stress.
v. Complete the following conceptual picture:



Q.3. Solve the following questions (Any five):

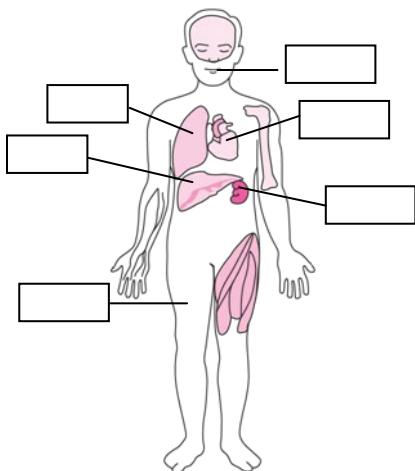
[15]

- 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

- 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, CO₂, 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.

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.

BOARD QUESTION PAPER: JULY 2020

Science and Technology Part - 2

Time: 2 Hours

Max. Marks: 40

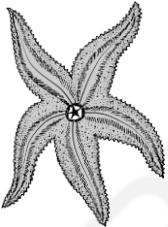
- Note:** i. All questions must be attempted.
ii. Wherever necessary scientifically correct diagrams and correct labelling should be drawn.
iii. Start every main question on a new page.
iv. Numbers to the right indicate full marks.
v. For Question No.1(A) MCQ marks will be given only for the first attempt.
vi. The answer to every MCQ should be written as shown:
Example – Q. No. 1(A) (i) (b).

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

- Water reservoir possesses _____ energy.
(A) Nuclear (B) Thermal
(C) Kinetic (D) Potential
- In mitotic division, nuclear membrane completely disappear in _____ phase.
(A) Telophase (B) Prophase
(C) Metaphase (D) Anaphase
- Genetic changes occur due to _____ pollution.
(A) Radioactive (B) Air (C) Water (D) Soil
- In human, sperm production occurs in the _____ organ.
(A) Seminal vesicle (B) Testes
(C) Prostate gland (D) Cowper's gland
- Which sanctuary of Assam is underthreat due to dams and indiscriminate use of water?
(A) Tadoba (B) Kaziranga (C) Manas (D) Sundarban

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

i.



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

- Find the *correct* co-relation:
Spirogyra: Fragmentation :: Planaria : _____.
- Write whether the following statement is True or False:
DNA fingerprinting is mainly useful in Forensic Sciences.
- Write the molecular formula:
4% acetic acid (Vinegar).
- Which molecules are necessary for the formation of plasma membrane?

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

- While performing the exercise, we feel tired.
- Hydroelectric energy, solar energy and wind energy are called renewable energies.
- Microbial enzymes are used instead of chemical catalysts in chemical industry.

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

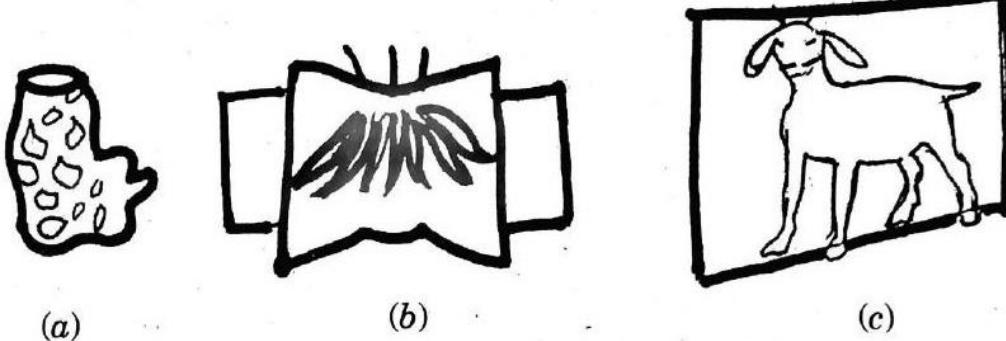
- Distinguish between Aerobic respiration and Anaerobic respiration (any two points).
- Write a short note on Sacred groves.
- Explain the term:
Modern technology of reproduction IVF.

- iv. How is Balanoglossus connecting link between chordates and non-chordates?
- v. Explain Darwin's theory of natural selection.

Q.3. Answer any five questions from the following.

[15]

i.

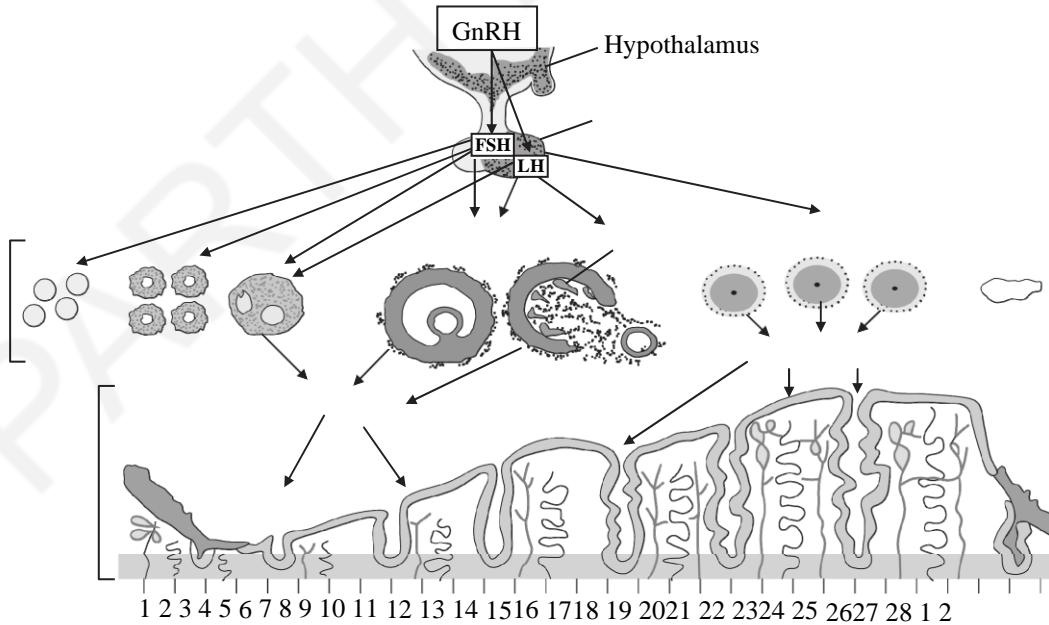


Identify and explain the above different types of symmetry.

- 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:



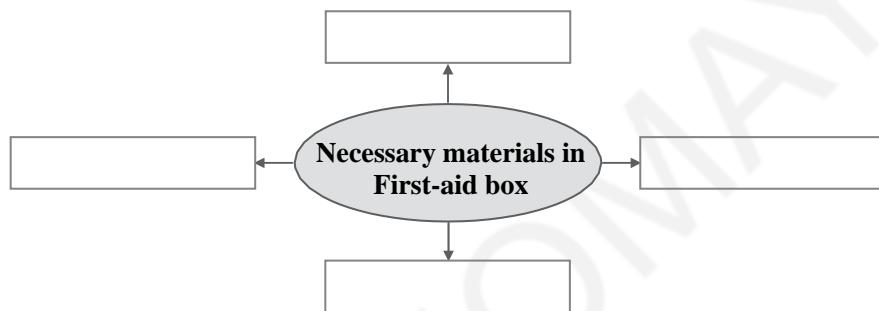
- a. Identify the process in above figure and after how many days it will repeat again?
- b. Write the names of hormones involved in this process.
- vi. What are the advantage of hydroelectric power generation?
- vii. a. Define vestigial organs.
b. Write name of any two vestigial organs in human body.
c. Explain how one human vestigial organ is functional in another animal.

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

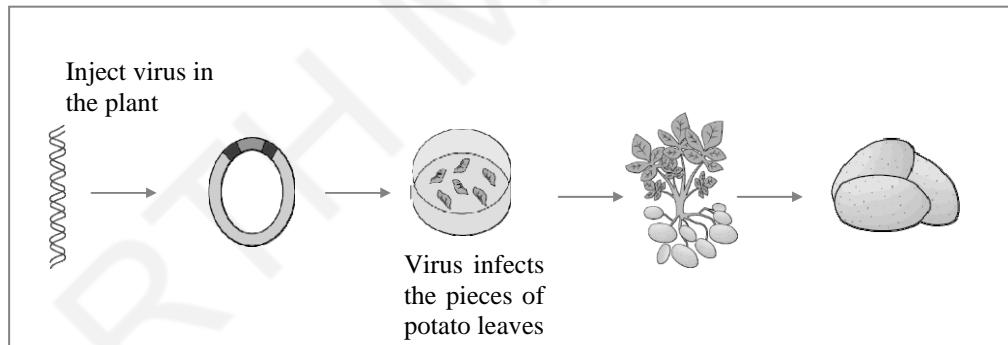
Q.4. Solve any one of the following:

[5]

- a. What is meant by disaster management? [1]
- b. Classify the following activities into pre-disaster management and post-disaster management:
 - Identifying the pro-disaster areas.
 - Quick establishment of help centre.
 - Participation of preferably local peoples saved from the disaster in arranging the help to victims.
 - Getting special training for disaster management.
- c. Complete the diagram: [2]



- ii. Observe the figure and answer the following questions:



- Identify the process given in the above figure. [1]
- Write the importance of above process. [2]
- Write any two benefits of Biotechnology. [2]

N 210

Seat No.

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2021 IX 30 1030 -N 210 – SCIENCE AND TECHNOLOGY (72) - PART II (E)

(REVISED COURSE)

Time: 2 Hours

(Pages 11)

Max. Marks: 40

Note: i. All questions are compulsory.

ii. Use of calculators is not allowed.

iii. Figures to the right indicate full marks.

iv. Start writing each main question on new page.

v. For each MCQ (i.e. Q. No. 1(A)) evaluation would be done for first attempt only.

v. For each MCQ correct answer must be written along with its alphabet.

Eg.: (i) (A)....., (ii) (B), (iii) (C)

vi. Draw scientifically correct labelled diagrams wherever necessary.

2/N 210

1. (A) Write the correct alternative: 5

- (i) All chromosomes are arranged parallel to equatorial plane of cell in phase of mitosis.
- (A) Prophase
(B) Metaphase
(C) Anaphase
(D) Telophase
- (ii) In thermal power plants, the energy in the coal is converted into electrical energy through several steps.
- (A) solar
(B) nuclear
(C) thermal
(D) chemical

3/N 210

(iii) Genetically ModifiedCrops has the ability to destroy

bollworms.

(A) BT Brinjal

(B) Golden Rice

(C) BT Cotton

(D) corn

(iv) disease is related with the synthesis of insulin.

(A) Cancer

(B) Diabetes

(C) Viral infections

(D) Dwarfism

4/N 210

(v) helps to improve concentration in studies

(A) Meditation

(B) Music

(C) Dance

(D) Laughing

(B) Answer the following :

5

(i) Complete the correlation :

Wisdom teeth : vestigial organ :: Lungfish :

(ii) Separate the odd component.

progesterone, estrogen, melanin, testosterone

5/N 210

(iii) State True or False:

The turbines at the thermal power plant operate on solar energy.

(iv) My outer structure is made of exoskeleton; I have three pair of legs to

walk. Tell me to which phylum I belong?

(v) Write any two examples of man-made disasters.

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

4

(i) Cell division is one of the very important properties of cells and living organisms.

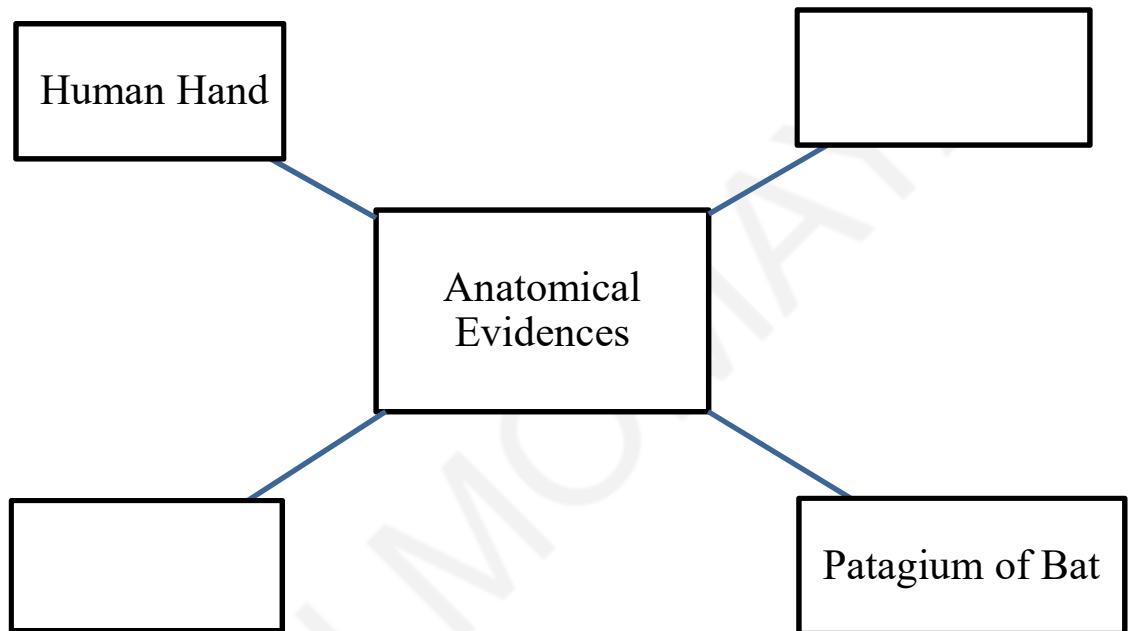
(ii) Girls face stress due to gender inequality.

(iii) Our body irritates if it comes in contact with jellyfish.

(B) Answer the following (any three) :

6

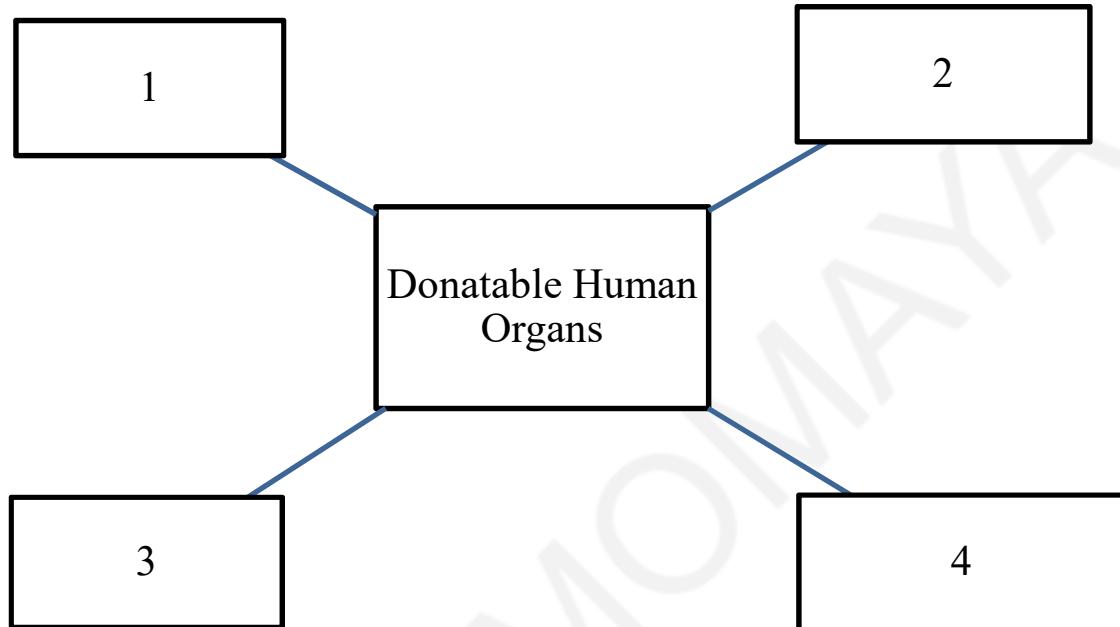
(i) Complete the following diagram



ii. Describe any two animals of endangered species.

7/N 210

iii. Complete the picture



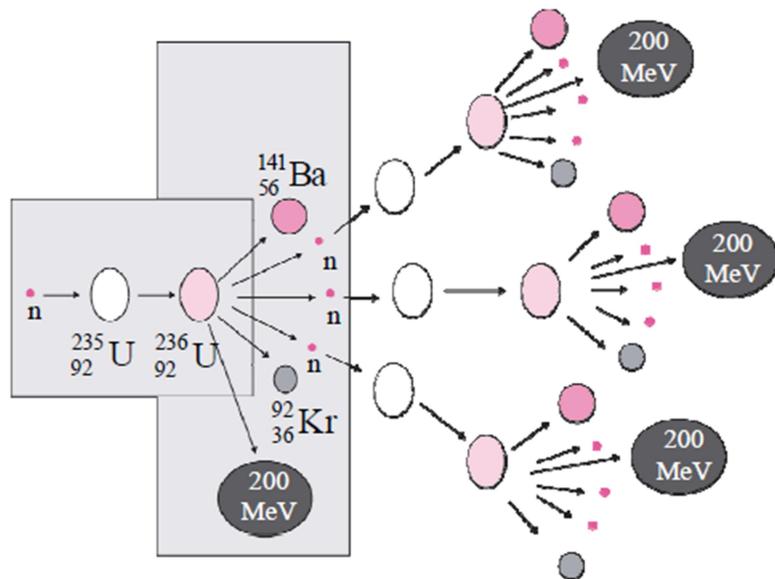
iv. Explain the term Bioinsecticides.

v. What do you understand by mock drill? Give examples.

3. Answer the following (any five) :

15

- (i) Answer the following questions with respect to the below figure.



- (a) Identify the reaction shown in the figure.
(b) Where is this reaction used?
(c) Which atom is used in this reaction?

9/N 210

(ii) What will you do?

- (a) Your younger brother is addicted to smoking.
- (b) Your maid's husband beats her after getting addicted with alcohol.
- (c) Your younger brother is playing game on mobile phone while eating.

(ii) What do you mean by fossils? Write the importance of fossils.

Write the name of method to find the age of fossils.

- (iv) Name the largest phylum of kingdom Animalia. Write any two characteristics of it.
- (v) Why is it necessary to ban the use of plastic bags?
- (vi) Which precautions will you take during spraying of pesticides?

10/N 210

(vii) Following are the pictures of some disasters. How will be your pre-and post-disaster management in case you face any of those disasters?

a.



b.



c.



(viii) Differentiate between mitosis and meiosis. (Any 3 points)

11/N 210

4. Answer any one of the following: 5

- i. With the help of a neat labelled diagram write any three parts of inside of flower.
- ii. What are the three endangered heritage places in India? Mention two measures you will take to protect this with reasons.

BOARD QUESTION PAPER: MARCH 2022

Science and Technology Part - 2

Time: 2 Hours

Max Marks: 40

- Note:**
- i. All questions are compulsory.
 - ii. Use of a calculator is not allowed.
 - iii. The numbers to the right of the questions indicate full marks.
 - iv. In case of MCQs (Q. No. 1(A)) only the first attempt will be evaluated and will be given credit.
 - v. For each MCQ, the correct alternative (A), (B), (C), (D) with subquestion number is to be written as an answer.
For Eg: (i) (A), (ii) (B), (iii) (C)
 - vi. Scientifically correct, labelled diagrams should be drawn wherever necessary.

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

(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.



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

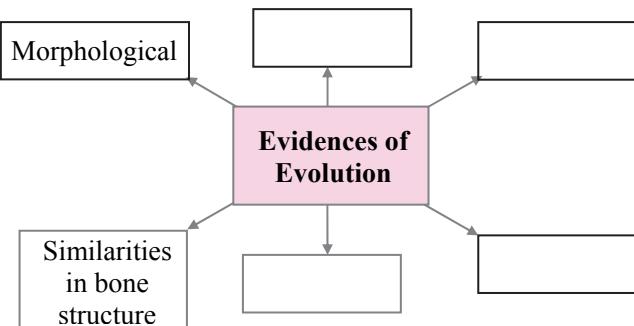
[4]

- Cell division is one of the important properties of cell and organisms.
- Cockroach belongs to phylum Arthropoda.
- Power generation plant based on natural gas is eco-friendly.

(B) Answer the following (any three):

[6]

- Complete the following diagram:



- What do we learn from the story of Jadav Molai Payeng?
- Distinguish between sexual reproduction and asexual reproduction. (*two points*)
- Define genetically modified crops and give any *two* examples.
- What are vitamins? Write *two* types of vitamins.

Q.3. Answer the following (any five):

[15]

- Explain the meanings of the following symbols:

(1)



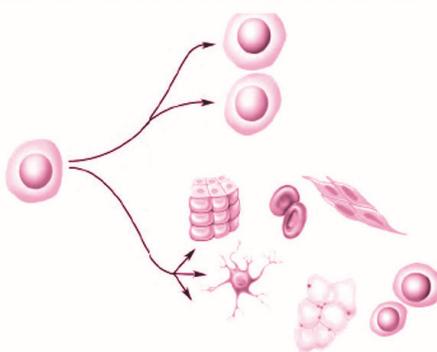
(2)



(3)

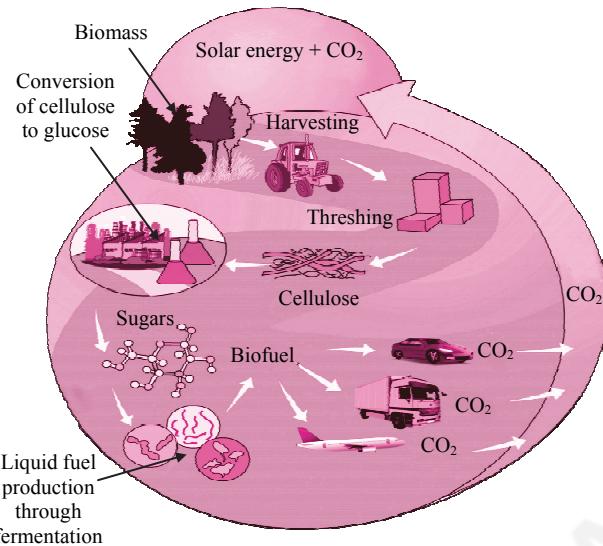


- Write any *three* characteristics of class Reptilia.
- (1) Which substance is used to produce cheese?
(2) Which enzyme was used earlier for cheese production?
(3) Which enzyme is used to produce vegetarian cheese?
- (1) Which process is shown in the given diagram?
(2) What is the importance of this process?
(3) Which organs can be transplanted by this process?

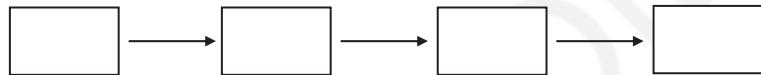


- What is meant by disaster? Write any *two* examples of each natural and man-made disaster.
- Write the objections raised against Darwin's theory of natural selection.

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.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.

BOARD ACTIVITY SHEET: MARCH 2023

Science and Technology Part - 2

Time: 2 Hours

Max. Marks: 40

- Note:** i. All questions are compulsory.
ii. Use of calculator is not allowed.
iii. The numbers to the right of the questions indicate full marks.
iv. In case of MCQs (Q. No. 1(A)) only the first attempt will be evaluated and will be given credit.
v. For every MCQ, the correct alternative (A), (B), (C) or (D) with subquestion number is to be written as an answer.
For Eg.: (i) (A), (ii) (B), (iii) (C)
vi. Scientifically correct, labelled diagrams should be drawn wherever necessary.

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*

(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:

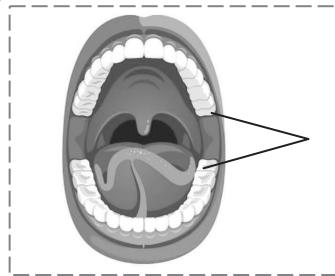
Insulin : diabetes :: Interferon : _____

- 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



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

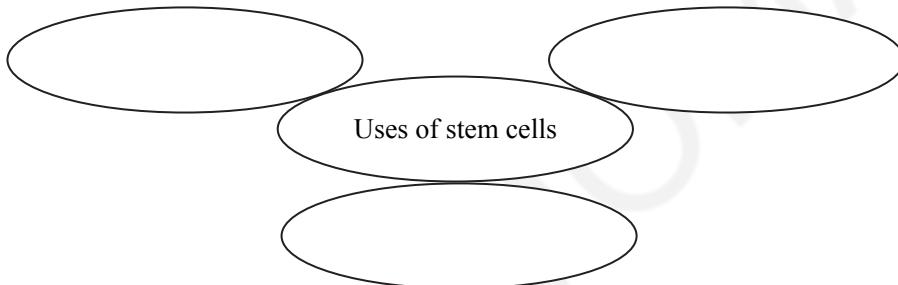
[4]

- Sometimes higher plants and animals too perform anaerobic respiration.
- It is absolutely necessary to control the fission reaction in nuclear power plant.
- Flower is structural unit of sexual reproduction in plants.

(B) Answer the following questions (any three):

[6]

- Write a short note on Environmental Conservation.
- Distinguish between Chordates and Non-chordates.
- Write the correct answer in blank circles.



- Write down any two objectives of disaster management.
- What are the benefits of mixing ethanol with petrol and diesel?

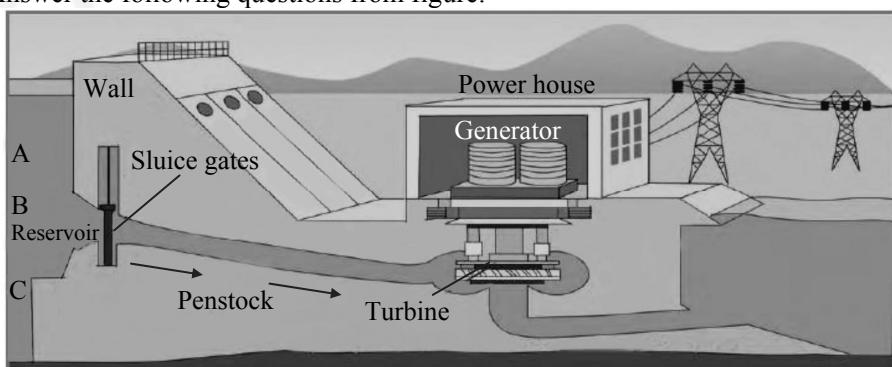
Q.3. Answer the following questions (any five):

[15]

- Darwin's theory of natural selection.
- Complete the following chart:

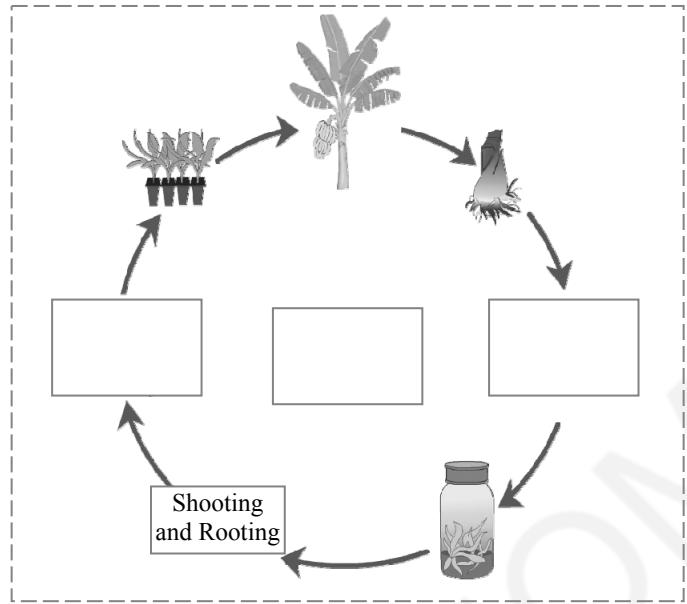
Sr. No.	Proteins	Name of the Organs
1.	Melanin, Keratin	_____
2.	_____	Pancreas
3.	Haemoglobin, antibodies	_____

- Write the factors affecting environment.
- Answer the following questions from figure:



- 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.



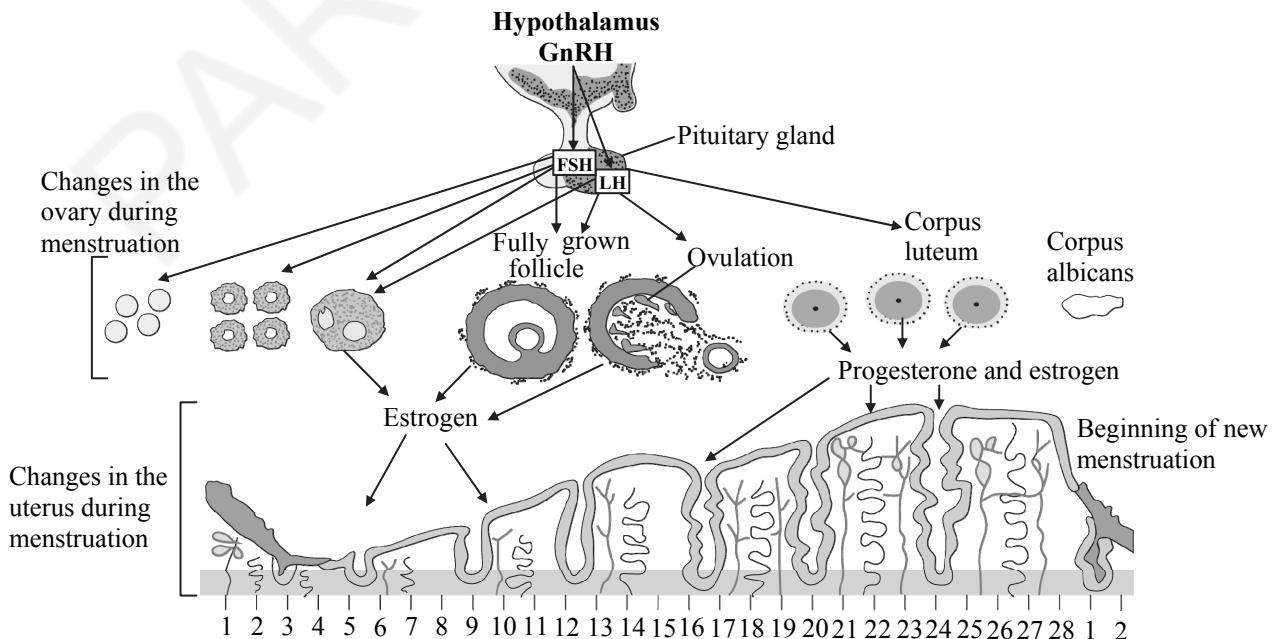
- vii. Which fuels are obtained from biomass?
- viii. Complete the following passage by using appropriate words given in brackets:
(Delhi, 12, 2005, army, National Disaster, rescue work, State Reserve Police, 2015)

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.4. Answer any one of the following questions:

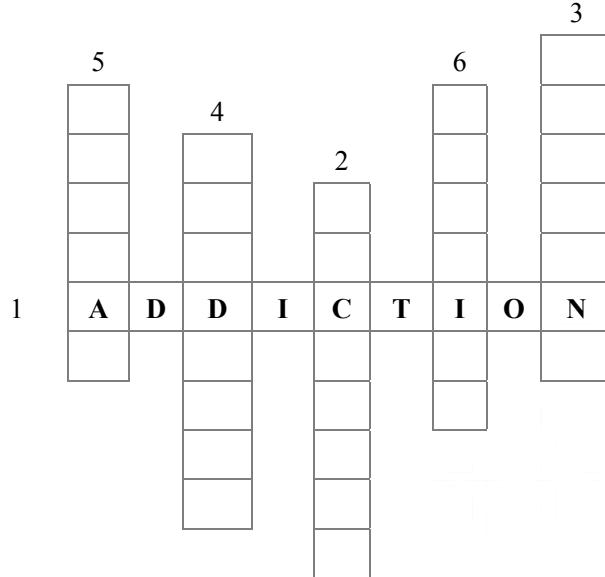
[5]

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



- (a) What is the period of menstruation?
- (b) On which day does ovulation occur during menstrual cycle?
- (c) In menstrual cycle which reproductive organs undergo changes?
- (d) Which period is said to be period of regeneration of endometrium ?
- (e) Which period is said to be period of secretions of glands in endometrium?

ii. Solve the following cross word:



- (1) Continuous consumption of alcoholic and tobacco materials.
- (2) This app may cause the cyber crimes.
- (3) A remedy to resolve stress.
- (4) Requirement for stress free life.
- (5) Various factors affect _____ health.
- (6) Art of preparing food items.



BOARD ACTIVITY SHEET: July 2023

Science and Technology Part - 2

Time: 2 Hours

Max Marks: 40

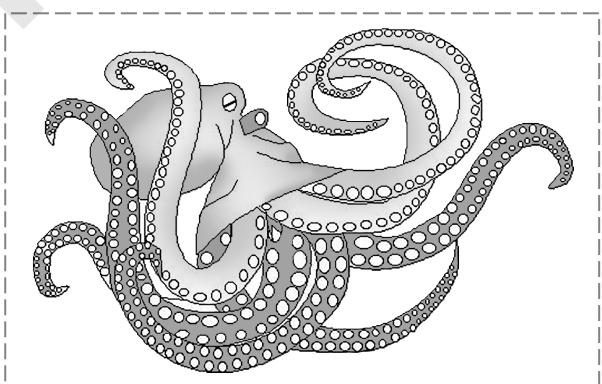
Note:

- i. All questions are compulsory.
- ii. The numbers to the right of the questions indicate full marks.
- iii. Answer to every main question must start on a new page.
- iv. In case of MCQs (Q. No. 1(A)) only the first attempt will be evaluated and will be given credit.
- v. For every MCQ, the correct alternative (A), (B), (C) or (D) with sub-question number is to be written as an answer.
For Eg.: (i) (A), (ii) (B), (iii) (C) or (iv) (D)
- vi. Scientifically correct and labelled diagrams should be drawn wherever necessary.
- vii. Each answer must have correct question number and sub-question number.

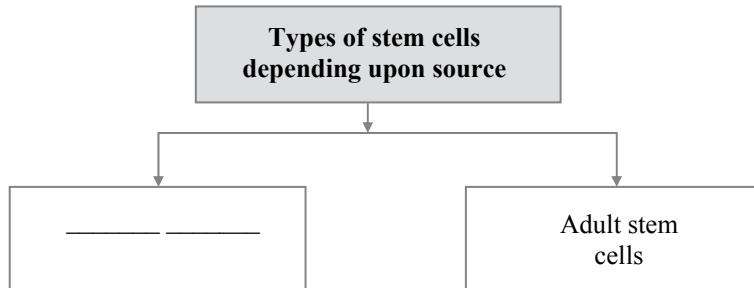
(B) Answer the following:

- i. Pick the odd man out:
β-carotene, lycopene, 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:

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

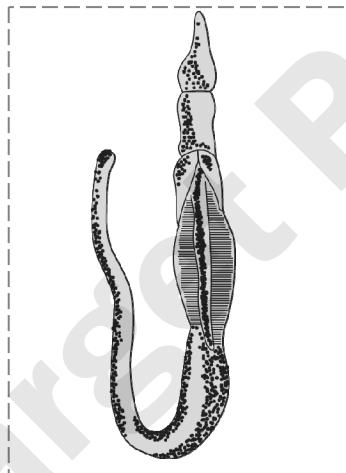
[4]

- Duck billed platypus is a connecting link.
- Biofuel is important among the renewable sources of energy.
- Humans have a crucial role in maintaining environmental balance.

(B) Answer the following (any three):

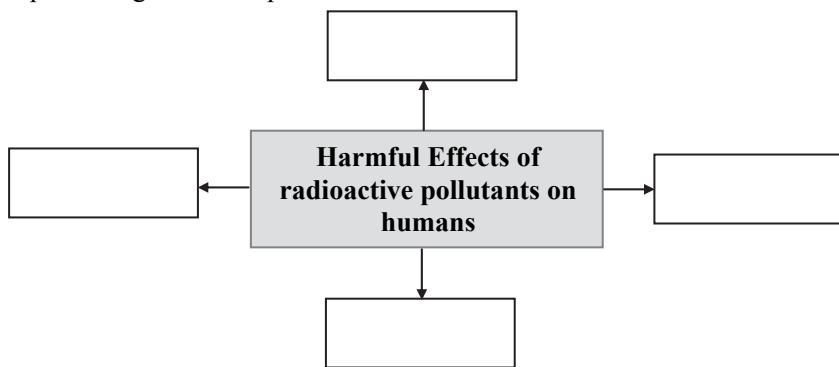
[6]

- Draw a neat and labelled diagram of mitochondria and tri-carboxylic acid cycle.
- Write any two objections that were raised against Darwin's Theory of Natural Selection.
- Observe the given animal and answer the following questions:
 - Identify the given animal and its phylum.
 - Write any two characteristics of that phylum.



iv. Write any two objectives of disaster management.

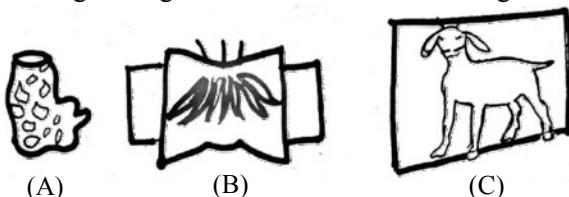
v. Complete the given conceptual chart:



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

[15]

- i. Observe the given figures and answer the following:

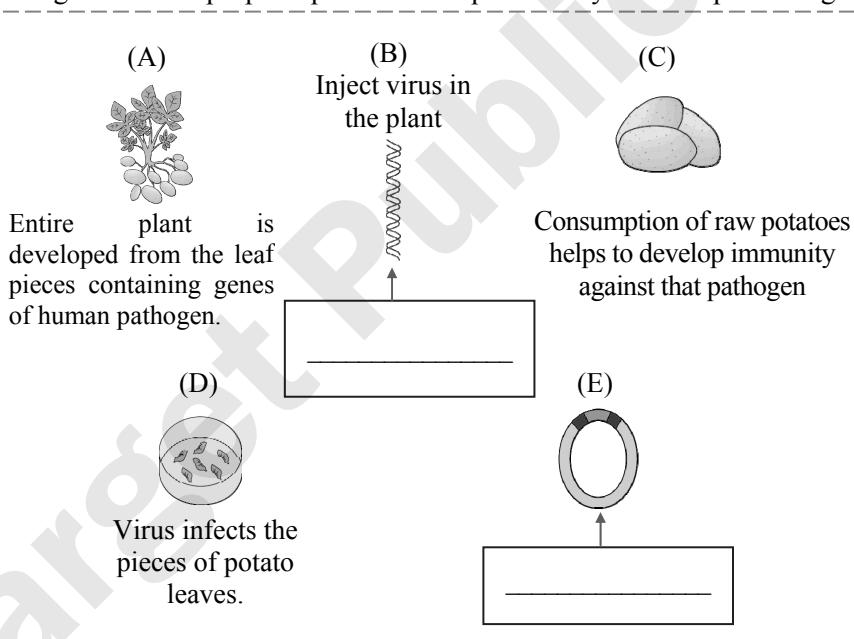


Identify the types of body symmetry and give *one* example of each apart from the given figure.

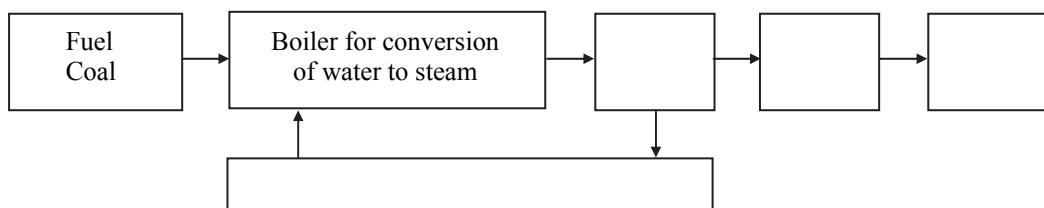
- ii. Write a short note on — The types of Biodiversity.
iii. Complete the given chart:

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

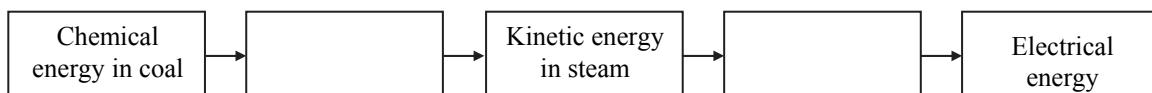
- iv. Rearrange and write proper alphabetical sequence only and complete the given blanks:



- 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.



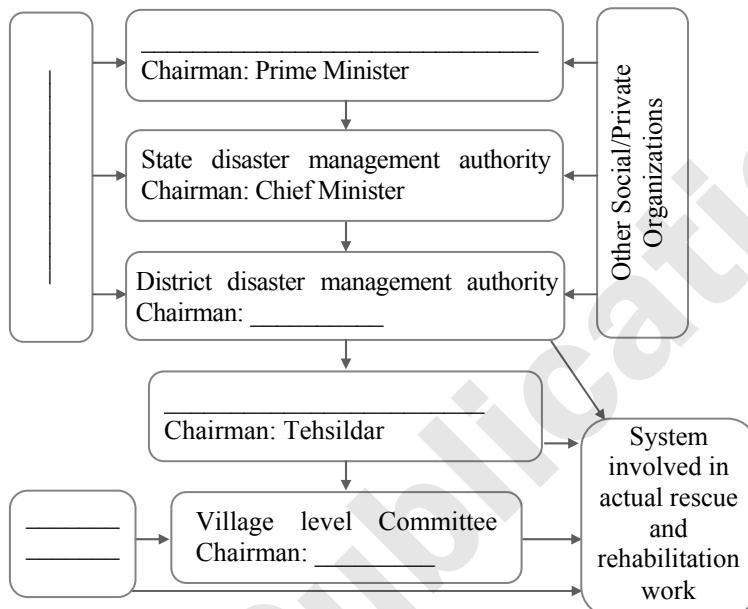


- vi. Complete the paragraph with the help of words given in the bracket:

(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 CO₂ 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?

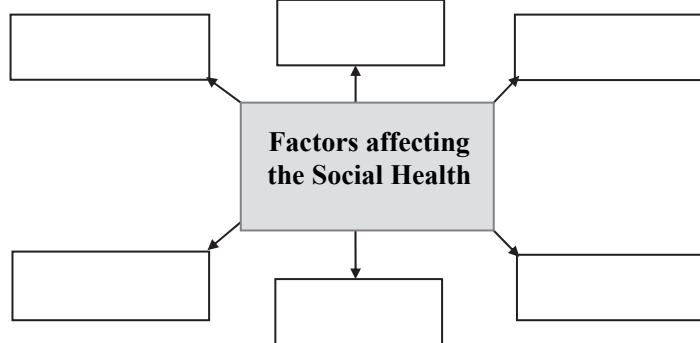
Q.4. Answer the following (any one):

[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)



- (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?





BOARD ACTIVITY SHEET: MARCH 2024

Science and Technology Part - 2

Time: 2 Hours

Max. Marks: 40

Note:

- i. All questions are compulsory.
- ii. The numbers to the right of the questions indicate full marks.
- iii. In case of MCQs [Q. No. 1(A)] only the first attempt will be evaluated and will be given credit.
- iv. Scientifically and technically correct, labeled diagrams should be drawn wherever necessary.
- v. Each new question should be started on the new page.

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

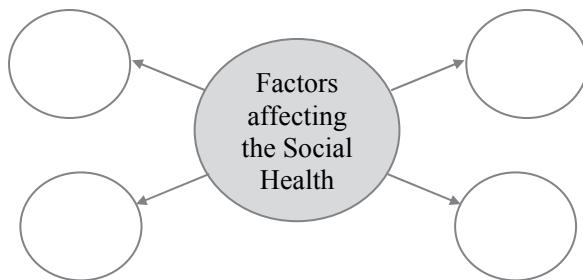
- Q.2. (A) Give scientific reasons (any two):** [4]

 - Though tortoise lives on land as well as in water, it cannot be included in class-Amphibia.
 - Hydroelectric energy, solar energy and wind energy are called renewable energies.
 - We feel tired after exercise.

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

 - 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?

Q.3. Answer any *five*:

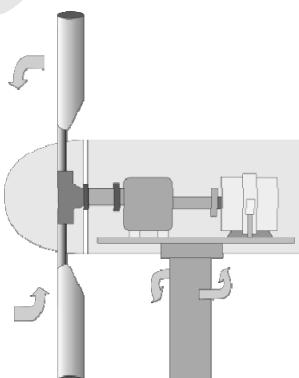
[15]

- 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, CO₂, 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 *Alcanivorax borkumensis* have the 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.

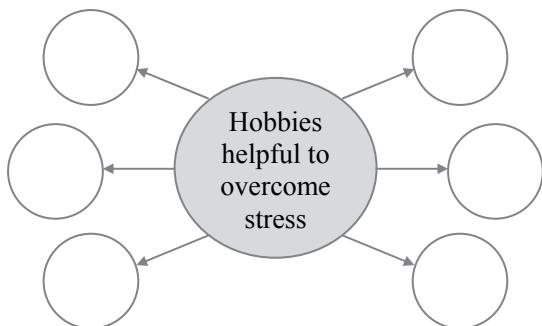
- iv. Observe the given picture and answer the questions.



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.

Q.4. Answer any *one*:

[5]

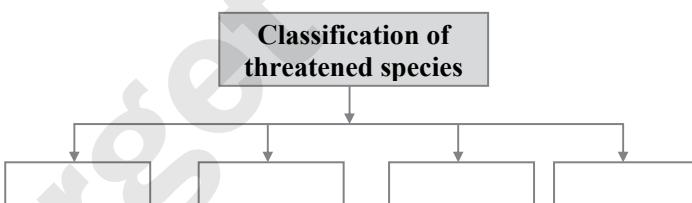
- i. Answer the following questions based on human male reproductive system:

- (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



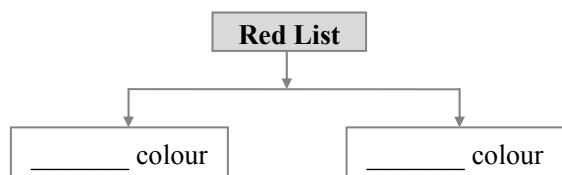
- (b) How can biodiversity be conserved? Give any *four* points.

2

- (c) Complete the flow chart:

1

Colour of the pages in Red List of Endangered Species



2/N 418

I. (A) Choose *correct* option and write its number for following questions :

(i) Evolution means

1

(A) Internal change

(B) Gradual change

(C) External change

(D) Quick change

(ii) One of the rare species is

4

(A) Lesser florican

(B) Red panda

(C) Tiger

(D) Shekhu

3/N 418

(ii) The machine which converts the kinetic energy of wind to electrical
S energy is called 1

- (A) Solar cell
- (B) Thermal
- (C) Generator
- (D) Wind turbine

(iv) Chemically, vinegar is 1

- F**
- (A) Acetic acid
 - (B) Amino acid
 - (C) Hydrochloric acid
 - (D) Gluconic acid

(v) We get kcal energy per gram of proteins. 1

- 2**
- (A) 4
 - (B) 3
 - (C) 2
 - (D) 1

4/N 418

(B) Solve the following questions :

(i) Find odd man out :

6

Starfish, Snail, Frog, Amoeba

(ii) Match the correct pairs :

4

Column 'A'

Column 'B'

(I) Biotic components

(a) Soil

(b) Plant

(c) Sunlight

(iii) Write the correlation :

8

White revolution : Dairy :: Blue revolution :

(iv) Observe the diagram and identify the phylum :

6



5/N 418

(v) State, whether given statement is right or wrong :

9

Peer group influence is stronger in case of adolescents.

2.

(A) Give scientific reason (any two) :

2

(i) Fibers are one of the important nutrients.

6

(ii) Though tortoise lives on land as well as in water, it cannot

5

be included in class-Amphibia.

(iii) Hydroelectric energy, solar energy and wind energy are

called renewable energies.

(B) Answer the following questions (any three) :

8

(i) Write down four benefits of Biotechnology.

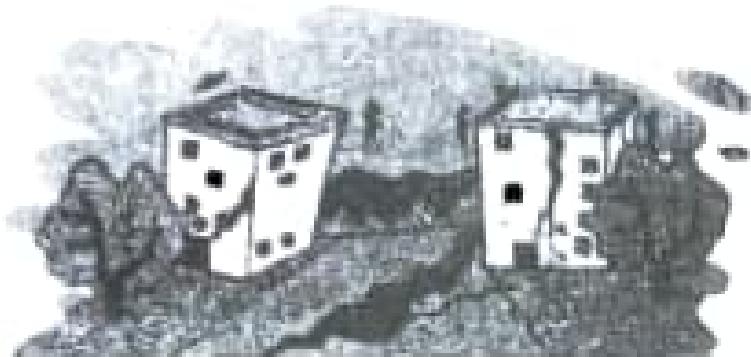
3

(ii) Distinguish between Sexual reproduction and Asexual

reproduction.

(iii) Observe the following diagrams and complete table :

10



'A'



'B'

Disaster

Snake Bite



--



Primary

Precaution

Stage



--

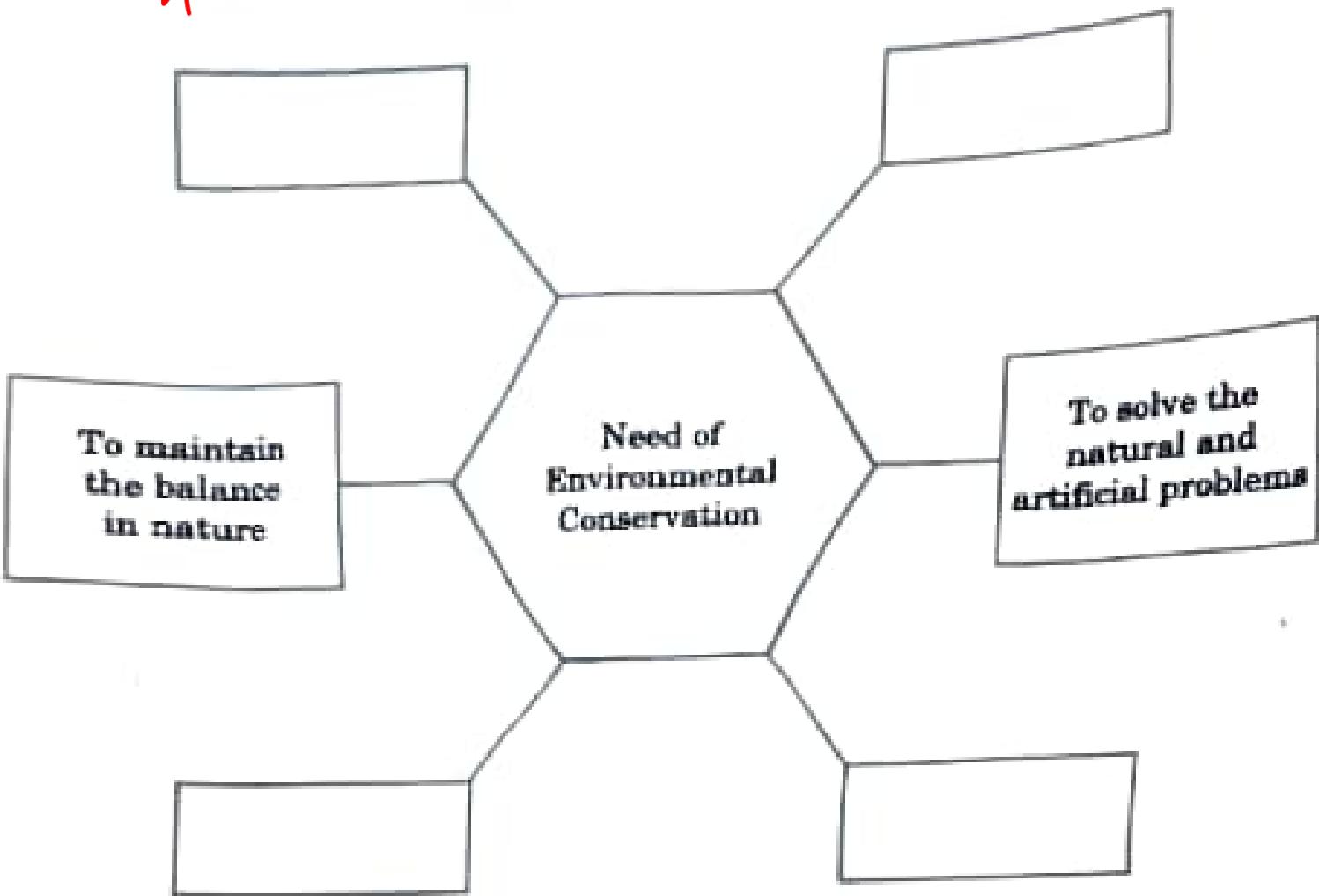


(1)
(2)

(iv) Write down any two features of Industrial Microbiology.

7

17 (v) Complete the following flow chart :



Solve the following questions (any five) :

15

6 (i) Write any three characteristic features of class "Aves".

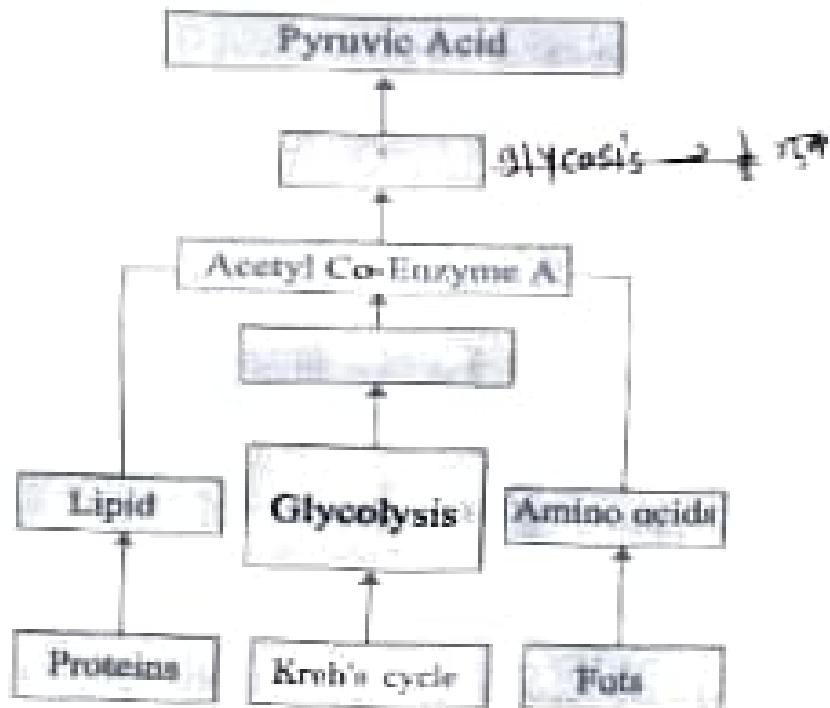
(ii) (a) What are vestigial organs ?

1 (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 ?

2

Correct the diagram given below :

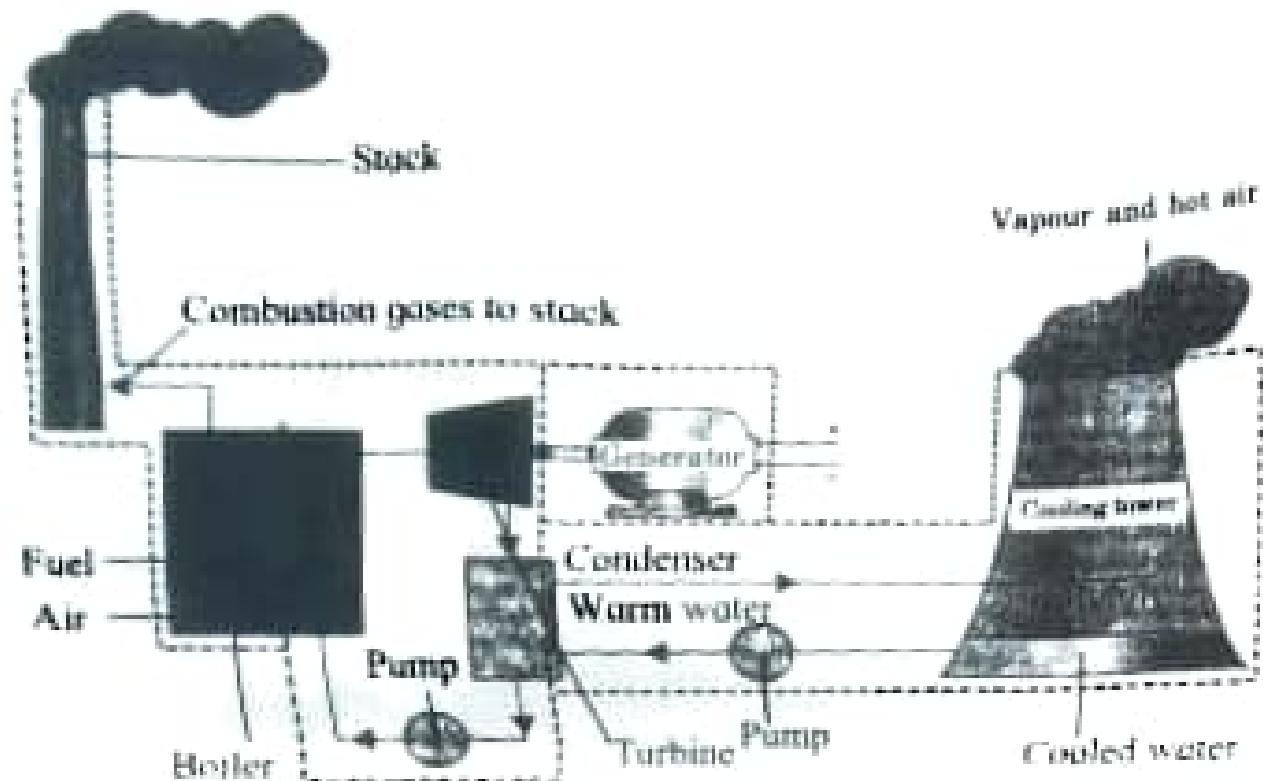


- (iv) What is the meaning of the following symbols ? Write your role accordingly.
- 4**



(i) Observe the diagram and answer the following questions.

5

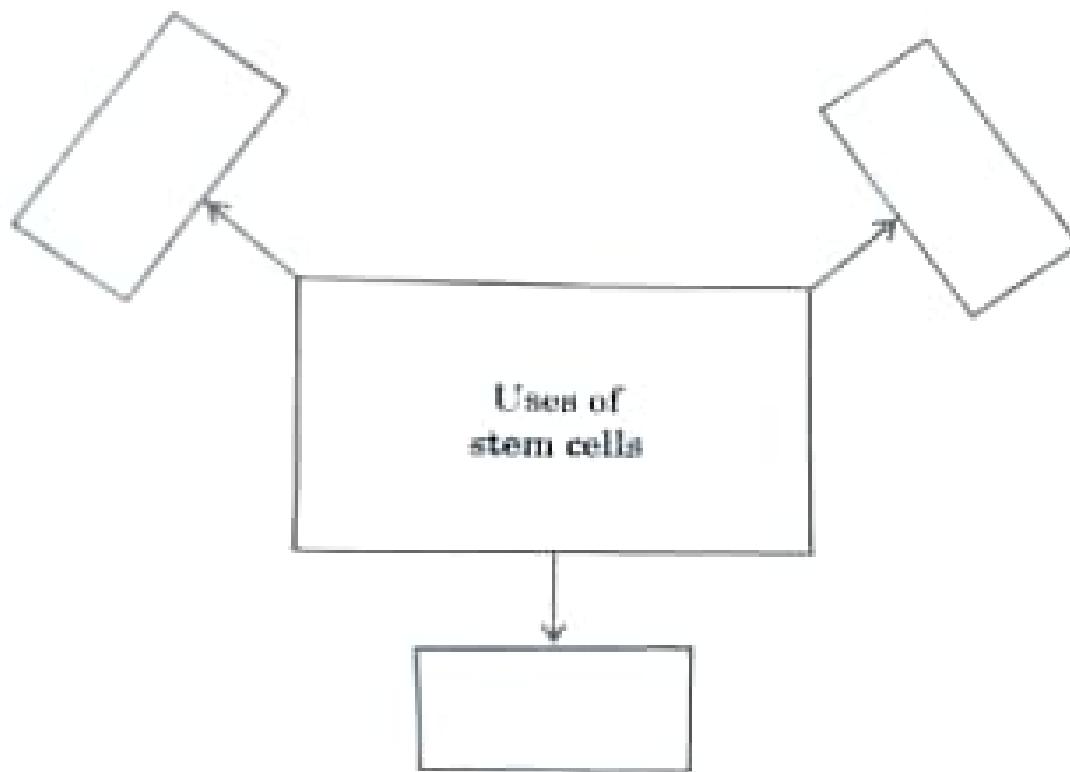


- Which type of energy is created in the above diagram?
- Which type of fuel is used in power plant?
- State one problem created in such type of power plant.
- Explain the importance of Biopesticides in organic farming.

8

10/N 418

- (iii) Complete the following conceptual picture and write its uses in treatment of various diseases :



10 (viii) Which are three objectives of disaster management ?

4. Solve the following questions (any one) :

- (i) (a) Draw well labelled diagram of female reproductive system. 2
3 (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

11/N 418

(ii) Give two examples of each :

9

1

(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