

**SCIENCE & TECHNOLOGY (PART 2)**

**Chapter-1: Heredity and Evolution**

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

- (1) The causality behind sudden changes was understood due to principle of Hugo de Vries.  
(A) Transcription (B) Translocation  
(C) Translation (D) Mutation
- (2) About 10 thousand years ago, \_\_\_\_\_ started to practice agriculture.  
(A) Gorilla (B) wise man  
(C) Ramapithecus (D) Australopithecus
- (3) \_\_\_\_\_ can be considered as the first example of wise-man.  
(A) Australopithecus (B) Ramapithecus  
(C) Cro Magnon (D) Neanderthal man

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

- (i) Find the odd one out:  
❖ Human hand, flipper of whale, foreleg of ox, wing of cockroach
- (ii) Find the odd one out:  
❖ Venation, Shape of seed, Leaf petiole, Shape of leaf.
- (iii) Find the correlation:  
❖ Survival of fittest: Darwin : Acquired characters: \_\_\_\_\_

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

- (1) Darwin's work on evolution has been a milestone.

**Q.2: (B) Solve the following questions:**

- (1) Distinguish between ape and man.

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- (2) Distinguish between the following:  
Transcription and Translation. (4 points of difference to be written)
- (3) Define the following terms
  - (a) Mutation
  - (b) Translocation.

### Q.3: Answer the following:

- (1) What do you mean by fossil? Explain the importance of fossil as proof of evolution.
- (2)
  - (a) Explain in brief: Lamarck's principle of use or disuse of organs.
  - (b) Give two examples.
  - (c) What are acquired characters?
- (3)
  - (a) Describe briefly Darwin's theory of natural selection.
  - (b) What were the objections raised against Darwinism?
  - (c) Which book was published by Darwin to explain this theory?

## Chapter-2: Life Processes in living organisms Part -1

### Q.1: (A) Write the correct alternative:

- (1) Excess of carbohydrates are stored in liver and muscles in the form of \_\_\_\_\_.  
(A) sugar                      (B) glucose                      (C) glycogen                      (D) protein
- (2) We get \_\_\_\_\_ energy from carbohydrates.  
(A) 9 kcal/gm                      (B) 9 cal/gm                      (C) 4 cal/gm                      (D) 4 kcal/gm
- (3) ATP is called \_\_\_\_\_ of the cell.  
(A) energy currency                      (B) combustion fuel  
(C) storage of glucose                      (D) protein depot

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### Q.1: (B) Solve the following questions:

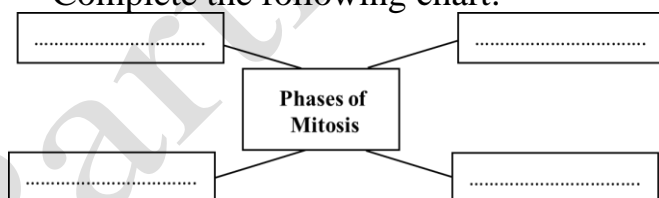
- (1) Find out the correct correlation:  
❖ Division of nucleus : Karyokinesis : : Division of cytoplasm: \_\_\_\_\_
- (2) Name the following:  
❖ Two co-enzymes involved in cellular respiration.
- (3) Write whether the following statement is True or False:  
❖ Glycolysis is also called Embden - Meyerhof - Parnes pathway.
- (4) Write molecular formula of glucose.
- (5) Find the correlation:  
❖ Condensation of chromosomes: Prophase : : Formation of spindle fibres: \_\_\_\_\_.

### Q.2: (A) Give scientific reasons:

- (1) Cell division is one of the important properties of cells and organisms.
- (2) Oxygen is necessary for complete oxidation of glucose.

### Q.2: (B) Solve the following questions:

- (1) Complete the following chart:



- (2) Name the proteins present in  
(a) Muscles (b) Bones
- (3) Name any four stages of prophase-I of meiosis.
- (4) Distinguish between Mitosis and Meiosis.  
(Write 4 points of differences)

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### Q.3: Answer the following:

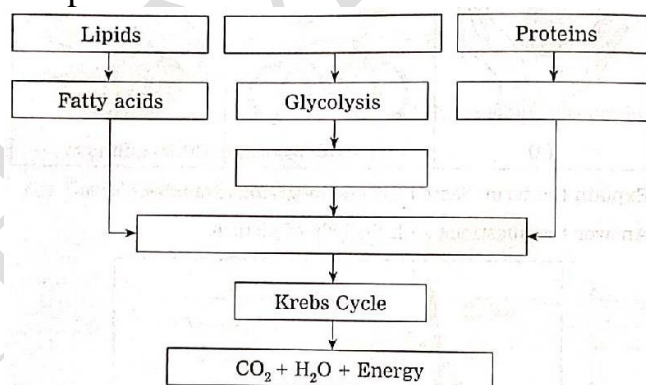
- (1) Complete the paragraph by choosing the appropriate words given in the brackets:

(genetically, recombination, gamete, crossing over, haploid, diploid, Meiosis-II, Meiosis-I, zygote)

\_\_\_\_\_ is just like mitosis. In this stage, the two haploid daughter cells formed in \_\_\_\_\_ undergo division by separation of recombined sister chromatids and four haploid daughter cells are formed. Process of \_\_\_\_\_ production and spore formation occurs by meiosis. In this type of cell division, four haploid (n) daughter cells are formed from one \_\_\_\_\_ cell. During this cell division, \_\_\_\_\_ occurs between the homologous \_\_\_\_\_ chromosomes and thereby genetic recombination occurs. Due to this, all the four daughter cells are \_\_\_\_\_ different from parent cell and from each other too.

### Q.4: Answer the following:

- (1) Complete the following chart and state which process of energy production it represents:



## Chapter-3: Life Processes in living organisms Part -2

### Q.1: (A) Choose the correct option and write its number for the following questions:

- (1) Longitudinal binary fission is seen in \_\_\_\_\_  
(A) Paramecium (B) Euglena  
(C) Amoeba (D) Spirogyra

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- (2) Yeast cell performs asexual reproduction by \_\_\_\_\_.  
(A) fragmentation (B) budding  
(C) binary fission (D) regeneration

### Q.1: (B) Solve the following questions:

- (1) Name the following:  
❖ Hormones secreted by ovary of female reproductive system.
- (2) Select correct option in Group 'B' related to Group 'A':  
❖

| Group 'A'      | Group 'B'                                       |
|----------------|-------------------------------------------------|
| Female hormone | (a) testosterone<br>(b) insulin<br>(c) estrogen |

- (3) Find the correlation  
❖ Bisexual flower ; Hibiscus ; Unisexual flower ; \_\_\_\_\_
- (4) Find the odd one out:  
❖ Carrot, Radish, Potato, Sweet potato.

### Q.2: (A) Give scientific reasons:

- (1) Flower is the structural unit of sexual reproduction in plant.
- (2) By the age of 45-50 woman gets menopause.

### Q.2: (B) Answer the following:

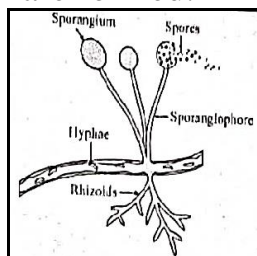
- (1) Distinguish between:  
Human male reproductive system and Human female reproductive system. (4 points of differences to be written)

### Q.3: Answer the following:

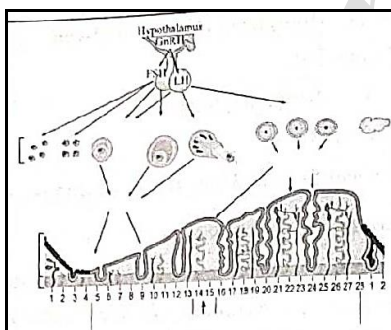
- (1) Despite various diagnostic tests, a couple could not have a child. In this situation, which remedies will you suggest?

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- (2) Sketch and label process of double fertilization in plants.
- (3) (a) In the following figure, explain how new fungal colonies of mucor are formed:

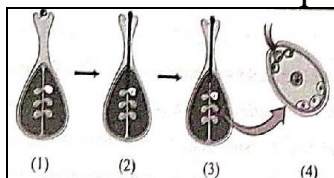


- (b) Identify and state the type of reproduction represented in the above figure.
- (4) Observe the figure of menstrual cycle and answer the following questions:



### Questions:

- (a) Which human organs are involved in this process?
- (b) Which hormones take part in this process?
- (c) On which day does ovulation occur during menstrual cycle?
- (5) Observe the diagrams and answer the questions given below:



### Questions:

- (a) Which floral whorls are shown in Figure (1)?
- (b) What is travelling through the pollen tube?
- (c) Explain the process shown in the (3) and (4) diagrams.

**Q.4: Answer the following:**

(1) Read the given paragraph and answer the questions given below  
Reproduction is the process by which the living species continues its existence. Lower organisms carry out asexual reproduction while higher asexually by methods such as fragmentation, vegetative prop plants and animals always show sexual reproduction. Plants reproduce asexually by methods such as fragmentation, vegetative propagation budding, spore formation. For sexual reproduction they form gametes. In animal kingdom, budding, fission of different types and parthenogenesis are some of the methods that do not require both the sexes. Though regeneration also forms new individual, it is not considered to be a reproductive process because, basically it is a repair process. The ability to regenerate is lost in higher phyla. In human beings it is restricted only to wound healing. Sexual reproduction is also undergoing lots of experimentation such as cloning which may make females capable of producing their own baby without intervention of any male.

**Questions:**

- (a) How do living species continue their existence?
- (b) Which are asexual methods of reproduction in Kingdom Animalia?
- (c) Why is regeneration not true method of reproduction?
- (d) What are methods of reproduction in plants?
- (e) What is the modern method of reproduction aimed, at in higher organisms?

**Chapter-4: Environmental management**

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

- (1) The atomic energy plant at Chernobyl was used only for generating \_\_\_\_\_
- |                   |                 |
|-------------------|-----------------|
| (A) electricity   | (B) solar power |
| (C) atomic energy | (D) agriculture |

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

- (1) Find the odd one out:  
❖ Lion tailed monkey, White rats, Music deer, Tiger

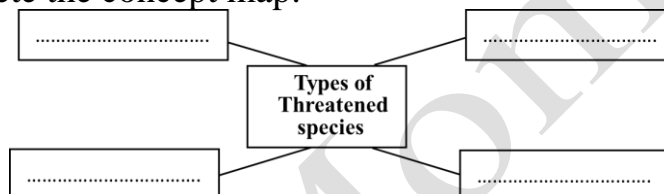
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### Q.2: (A) Give scientific reasons:

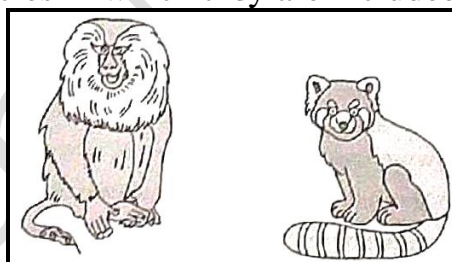
- (1) There are clusters of thick forest in the Western Ghats of India.
- (2) There is no definite information about indeterminate species.
- (3) Certain scavenging caterpillars, termites and insects found in the dung are important.

### Q.2: (B) Solve the following questions:

- (1) What is our social responsibility towards environmental conservation?
- (2) Complete the concept map:

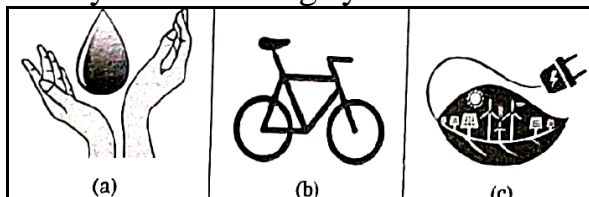


- (3) Write the names of the following animals and mention the type of threatened species in which they are included.



### Q.3: Answer the following:

- (1) Identify the following symbols and state their significance:





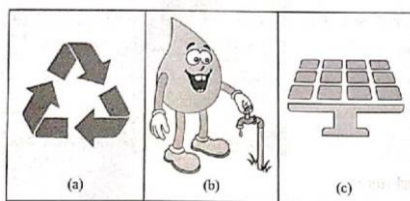
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- (2) Explain the term 'Sacred Groves' by giving examples.
- (3) Many people come together to destroy the forest, but a single person, if determined, can establish a new forest!  
Explain the above statement citing the example of Jadav Molai Payeng.
- (4) Write one effect and one control measure of following pollutions:  
(a) Air pollution      (b) Water pollution      (c) Soil pollution.

### Q.4: Answer the following:

- (1) What do these symbols indicate? Explain your opinion about these symbols.



- (2) Read the paragraph and answer the questions given below:  
Our atmosphere is getting hotter, more turbulent, and more unpredictable because of the "boiling and churning" effect caused by the heat-trapping greenhouse gases within the upper layers of atmosphere. With increase of carbon, methane, or other greenhouse gas levels in the atmosphere, our local weather and global climate is further agitated, heated, and "boiled". The greenhouse gases such as water vapour, carbon dioxide, methane, nitrous oxide and ozone are causing great impact on life on earth. Due to global warming, the glaciers are melting, causing sea level rise, coastal submergence and frequent natural disasters. We have to rethink while taking the development projects and help to protect the existing life forms on the earth before it is too late because climate change can exterminate us.

#### Questions:

- (a) Why is there increased global warming?
- (b) Which are the main greenhouse gases?
- (c) What is chain of impacts caused due to global warming?
- (d) Why is life threatened on earth due to global warming?
- (e) What can we do to reverse effects of climate change?

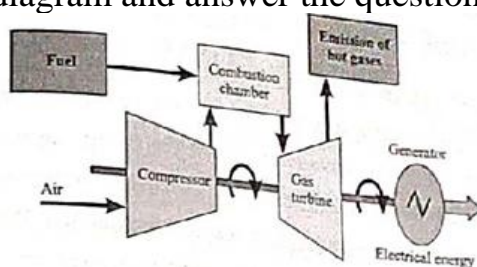
## Chapter-5: Towards Green Energy

**Q.1: Solve the following questions:**

- (1) State True or False:  
❖ In thermal power plants, the turbines work on solar energy.

**Q.2: Answer the following:**

- (1) Observe the diagram and answer the questions:



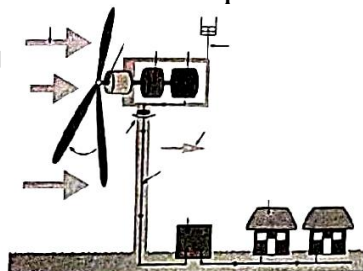
**Questions:**

- (a) Which energy is generated from the power plant?  
(b) State the source of energy produced.  
(c) Which is more eco-friendly - Power generation from coal or power generation from natural gas? Why?

- (2) Complete the following table:

| Source of energy    | Types of energy | Power plant   |
|---------------------|-----------------|---------------|
| (1) Coal            | Thermal energy  | Thermal plant |
| (2) Uranium         | .....           | .....         |
| (3) Water reservoir | .....           | .....         |
| (4) Wind            | .....           | .....         |

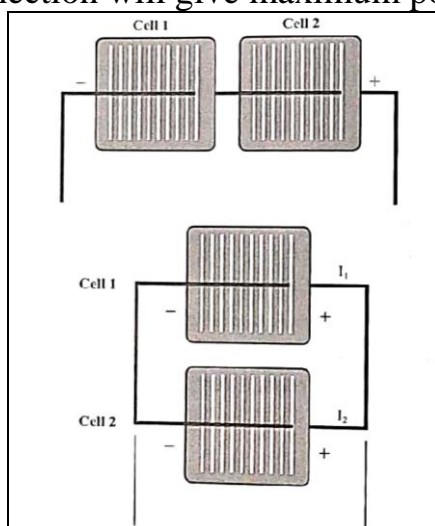
- (3) Answer the questions with the help of picture.



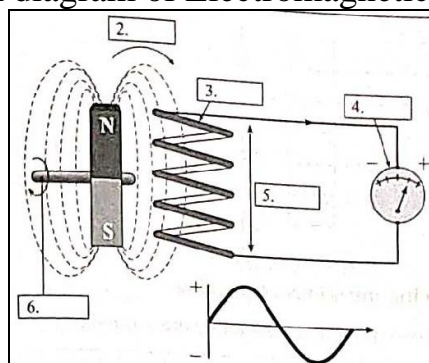
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### Questions:

- (a) Which type of energy is produced?
  - (b) This power plant is based on which energy source?
  - (c) Is this power plant eco-friendly? Flow?
- (4) Sketch two ways in which solar cells can be connected. Also draw the diagrams to show the arrangement of solar cells to form solar panel and solar array.
- (5) Observe the connections of cells shown in the following images:
- (a) Which connection will give maximum potential difference?



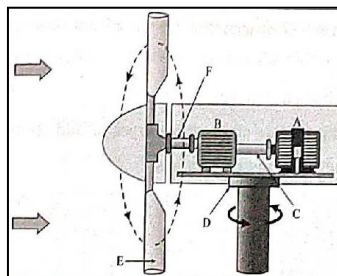
- (b) Give one advantage of solar energy.
- (c) Give one disadvantage of solar energy.
- (6) Label the given diagram of Electromagnetic induction correctly.



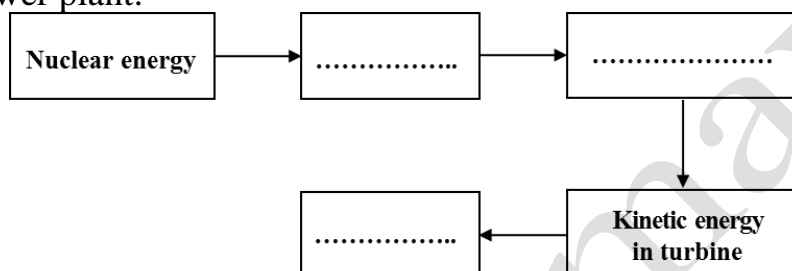
Electromagnetic induction

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- (7) Label correctly the structures marked as A, B, C, D, E and F in Windmill.



- (8) Complete the flow chart showing energy transformation in nuclear power plant.



### Q.3: Answer the following:

- (1) Draw a schematic diagram of solar thermal electric energy generation and explain briefly it's working.

## Chapter-6: Animal Classification

### Q.1: (A) Choose the correct option and write its number for the following questions:

- (1) \_\_\_\_\_ is second largest phylum in animal kingdom.  
(A) Mollusca (B) Arthropods  
(C) Porifera (D) Platyhelminthes
- (2) Larvae of \_\_\_\_\_ metamorphose into adults after settling down at bottom of the sea.  
(A) Hemichordata (B) Urochordata  
(C) Cephalochordata (D) Cyclostomata
- (3) The body organization of unicellular organisms is of \_\_\_\_\_ grade  
(A) cellular (B) tissue  
(C) protoplasmic (D) organ

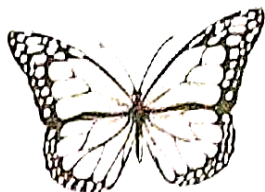
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- (4) Calcareous spines are present on the body of \_\_\_\_\_ animal.  
(A) fish (B) snail (C) sponge (D) star fish

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

- (1) Find the correlation:  
❖ Frog: Amphibia : : Jellyfish: \_\_\_\_\_
- (2) Find the odd one out  
❖ Tube feet, Setae, Parapodia, Sucker.
- (3)



Write the name of phylum of above animal.

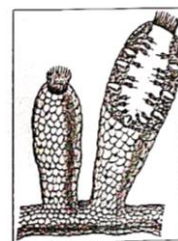
- (4) State whether following statement is True or False:  
❖ Cnidaria animals have special type of collar cells.

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

- (1) Peripatus is said to be a connecting link between Annelida and Arthropoda.
- (2) Body temperature of reptiles is not constant.
- (3) The sun is seen on the horizon a little before sunrise.

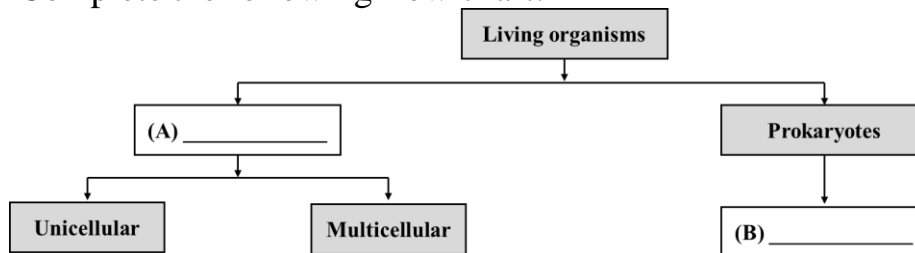
**Q.2: (B) Solve the following questions:**

- (1) Identify the phylum of the given animal and write any two characteristics of this phylum.



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- (2) Complete the following flow chart:



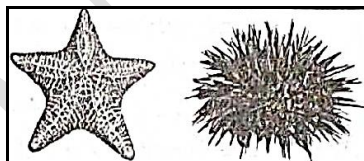
- (3) Identify the class of the animal shown in the figure and write any two characteristics.



- (4) Write short note on Budding in Hydra.

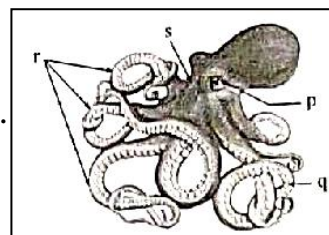
### Q.3: Answer the following:

- (1) What types of benefit and harm occur to human from animals of phylum Arthropoda? Explain it.
- (2) Observe the figure and answer the following questions:



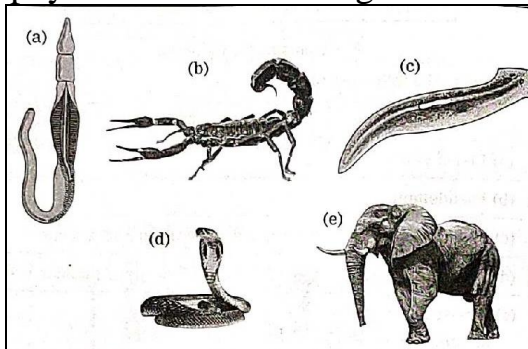
#### Questions:

- (a) To which phylum these organisms belong?
- (b) Name the substance with which their body is covered.
- (c) Name their organs of locomotion.
- (3) (a) Identify the animal given here.
- (b) Write the phylum to which it belongs.
- (c) Identify the pointed parts; p, q, r and s.



**Q.4: Answer the following:**

- (1) Write the class/phylum of the following animals:



**Chapter-7: Introduction to Microbiology**

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

- (1) \_\_\_\_\_ gas is considered to be the fuel of future.  
(A) Hydrogen (B) Nitrogen  
(C) Methane (D) Butane
- (2) Vinegar is chemically \_\_\_\_\_ acid.  
(A) Citric (B) Gluconic  
(C) Glutamic (D) Acetic
- (3) Bacteria used to clear the oil spills are called \_\_\_\_\_ bacteria.  
(A) phenol oxidizing (B) electrolytic  
(C) hydrocarbonoclastic (D) decomposing
- (4) \_\_\_\_\_ like compounds are formed due to lactobacilli that gives characteristic taste to the yoghurt.  
(A) Lactose (B) Casein  
(C) Acetaldehyde (D) All the above
- (5) \_\_\_\_\_ convert these salts of uranium into insoluble salts.  
(A) Saccharomyces (B) Thiobacillus  
(C) Acidobacillus (D) Geobacter

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- (6) \_\_\_\_\_ bacteria decompose the xenobiotic chemicals present in sewage.
- (A) Hydrocarbonoclastic (B) Decomposing  
(C) E. coli (D) Phenol oxidizing

### Q.1: (B) Solve the following questions:

- (1) State whether True/False:  
❖ Rifamycin is effective antibiotic against tuberculosis.
- (2) Match the pairs:  
❖

| Column 'A' | Column 'B'                                                            |
|------------|-----------------------------------------------------------------------|
| Vinegar    | (a) Polylactic acid<br>(b) Ice creams and puddings<br>(c) Acetic acid |

- (3) Write True/False:  
❖ Curd like food product made from sheep milk is called kefir.
- (4) Fill the blank space:  
❖ Mixture of wheat flour and rice flour → Fungus →

### Q.2: (A) Give scientific reasons:

- (1) Microbial enzymes are said to be eco-friendly.

### Q.2: (B) Answer the following:

- (1) Write one function of each Microbe used in clean technology:

| Microbes          | Functions |
|-------------------|-----------|
| (a) Geobacter     | .....     |
| (b) HCB bacteria  | .....     |
| (c) Thiobacilli   | .....     |
| (d) Actinomycetes | .....     |



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- (2) Write short note: Production of Yoghurt.

### Q.3: Answer the following:

- (1) Complete the following chart:

| Fruit           | Microbe used                              | Name of beverage |
|-----------------|-------------------------------------------|------------------|
| .....           | .....                                     | Coffee           |
| Theobroma cacao | Candida, Hansenula, Pichia, Saccharomyces | .....            |
| Grapes          | .....                                     | .....            |
| Apple           | Saccharomyces cerevisiae                  | .....            |

- (2) Complete the paragraph by choosing the appropriate words given in the brackets:  
(Nocardia, Geobacter, Ideonella sakaiensis, Pseudomonas, Alcanovorax borkumensis, hydrocarbonoclastic, Acidophillium, streptomyces)  
Bacteria like \_\_\_\_\_ spp. And \_\_\_\_\_ have the ability to destroy the pyridines and other chemicals. Hence, these bacteria are used to clear the oil spills. These are called \_\_\_\_\_ bacteria. It has been observed that species like Vibrio, \_\_\_\_\_ can decompose the PET. Similarly, species of fungi like \_\_\_\_\_ have ability of decomposing rubber from garbage. Sulphuric acid is source of energy for some species of bacteria like \_\_\_\_\_. Hence, these bacteria can control the soil pollution occurring due to acid rain. Geobacter convert the salts of uranium into insoluble salts.

## Chapter-8: Cell Biology and Biotechnology

### Q.1: (A) Choose the correct option and write its number for the following questions:

- (1) Transgenic raw potatoes generate the immunity against \_\_\_\_\_ disease.  
(A) plague                      (B) cholera                      (C) leprosy                      (D) TB
- (2) Government of India has encouraged the \_\_\_\_\_ for improving the productivity by launching NKM-16.  
(A) aquaculture                      (B) poultry                      (C) piggery                      (D) apiculture

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- (3) The property of stem cells is called \_\_\_\_\_.  
(A) diversity (B) equality  
(C) differentiation (D) pluripotency
- (4) The disease related with the synthesis of insulin is \_\_\_\_\_.  
(A) cancer (B) arthritis  
(C) cardiac problems (D) diabetes

### Q.1: (B) Solve the following questions:

- (1) Select correct option in Group 'B' related to Group 'A'



| Group 'A'             | Group 'B'                                                           |
|-----------------------|---------------------------------------------------------------------|
| Dr. M. S. Swaminathan | (a) White revolution<br>(b) Green revolution<br>(c) Blue revolution |

### Q.2: (A) Give scientific reasons:

- (1) Some of the organs in human body are most valuable.
- (2) Nowadays, safer vaccines are being produced.

### Q.2: (B) Solve the following questions:

- (1) Write definition of following terms:  
(a) Stem cell  
(b) Genetically modified crops
- (2) Give any two examples of bioremediation.

### Q.3: Answer the following:

- (1) What is DNA fingerprinting? Explain it in brief. Where is this technique used? Give any two examples.
- (2) Explain the meaning of vaccination.

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- (3) Complete the paragraph by choosing the appropriate words given in the brackets:

(degenerated, red bone marrow, adipose connective tissue, blastocyst, umbilical cord, Differentiation, tissues, organ)

\_\_\_\_\_ of stem cells form can form various tissues in the body.

Stem cells are present in the \_\_\_\_\_ by which the fetus is joined to the uterus of the mother. Stem cells are also present in the \_\_\_\_\_ stage of embryonic development. Stem cells are present in \_\_\_\_\_ and \_\_\_\_\_ of adult human beings. It has become possible to produce different types of tissues and the \_\_\_\_\_ part of any organ with the help of these stem cells.

- (4) Complete the following table:

| Plant/Microbes                 | Functions                                 |
|--------------------------------|-------------------------------------------|
| (a) Pteris vitata              | .....                                     |
| (b) Pseudomonas                | .....                                     |
| (c) .....                      | Absorption of uranium and arsenic         |
| (d) .....                      | Absorption of radiations of nuclear waste |
| (e) Grasses like alfalfa, etc. | .....                                     |
| (f) .....                      | Decomposing rubber from garbage           |

- (5) Sketch the concept diagram to show steps in the process of tissue culture.

#### Q.4: Answer the following:

- (1) Read the paragraph and answer the questions given below:

Remediation is the process of removing dangerous or poisonous substances from the environment, or limiting the effect that they have on it. When any biological organism is used for remediation, it is called bioremediation. When plant species are used for the purpose of remediation, it is called phytoremediation. When any microbes are used then it is named as microbial remediation. The methods of such remediation have helped to clean the environment from toxic effluents, especially sewage and crude oil. Dr. Anand Chakraborty, a scientist of Indian origin, has worked on Pseudomonas

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aeruginosa which have reduced the crude oil films into carbon dioxide and water.

### Questions:

- (a) What is the meaning of remediation?
  - (b) What is the difference between phytoremediation and microbial remediation?
  - (c) Which environmental pollutant is mainly removed through bioremediation process?
  - (d) What is the role of *Pseudomonas aeruginosa*?
  - (e) Why is Dr. Anand Chakraborty's work phenomenal?
- (2) With respect to stem cell therapy, answer the following questions:

### Questions:

- (a) What are stem cells?
- (b) How are stem cells preserved?
- (c) What are the sources of stem cells?
- (d) What are the two types of stem cells based on the sources?
- (e) Give the two uses of stem cells.

## Chapter-9: Social health

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

- (1) Our \_\_\_\_\_ has been changed to some extent in the age of technology.
- |                  |             |
|------------------|-------------|
| (A) life style   | (B) habit   |
| (C) circumstance | (D) passion |
- (2) Tobacco containing substances have \_\_\_\_\_ effect on mouth and lungs.
- |                  |              |
|------------------|--------------|
| (A) acidic       | (B) alkaline |
| (C) carcinogenic | (D) neutral  |

## ACTIVITY SHEETS FOR PRACTICE

### Q.1: (B) Solve the following questions:

- (1) Select correct option in Group 'B' related to Group 'A':



| Group 'A'     | Group 'B'                |
|---------------|--------------------------|
| Salaam Mumbai | (a) Laughter club        |
| Foundation    | (b) Freedom from tobacco |
|               | (c) Pet therapy          |

### Q.2: Solve the following questions:

- (1) Give two examples of each:
- (a) Diseases endangering the social health.
  - (b) Hobbies to reduce stress.
- (2) Give two examples of each:
- (a) Two ill effects of taking selfie.
  - (b) Factors affecting the social health.

### Q.3: Answer the following:

- (1) Observe the following figure and answer the given questions:

#### Questions:

- (a) What does this picture indicate?
- (b) Give any one cause for this problem.
- (c) Give any one measure to eradicate this problem.



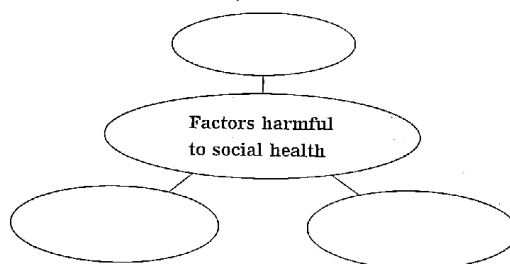
- (2) (a) Which mental illness is shown in the picture given below?



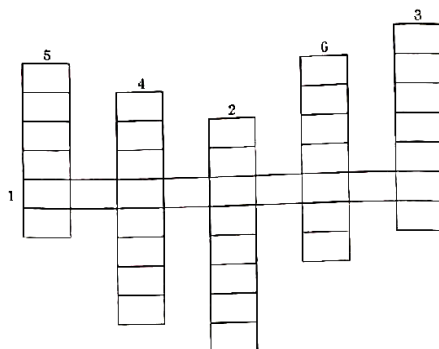
- (b) Which social message would you like to give through it.

## ACTIVITY SHEETS FOR PRACTICE

- (3) Complete the following concept-diagram using factors harming the social health and based on it, answer the following questions:



- (a) Tobacco products can be included in which of those factors?  
(b) How are the tobacco products harming the social health?
- (4) 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.



- (5) What is alcoholism? What are its effects?
- (6) The following picture shows three types of addictions. What are the ill effects caused by these addictions?



**Q.4: Answer the following:**

- (1) With respect to social health answer the following questions:

**Questions:**

- (a) What do you mean by social health?
- (b) Write two factors affecting the social health.
- (c) Write two ways to manage the stress.
- (d) Write any two addictive substances.
- (e) What is the significant threat to social health of an adolescent in your opinion?

**Chapter-10: Disaster Management**

**Q.1: Solve the following questions:**

- (1) Write the name of disaster described in the following statement:
- ❖ Elephant in the Bandipur forest started running helter and skelter due to smoke.

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

- (1) It is essential to get the training in first aid.
- (2) There is fast increase in Incidences of disasters in human life after the World War-II.

**Q.2: (B) Solve the following questions:**

- (1) What do the symbols below indicate? Write in brief.



## ACTIVITY SHEETS FOR PRACTICE

- (2) Observe the following symbol

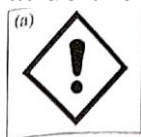


What is the meaning of the above symbol? Which disaster may occur if it is ignored?

- (3) Complete the table:

| Nature and scope of disaster |  |
|------------------------------|--|
| (1) Pre-disaster phase       |  |
| (2) .....                    |  |
| (3) .....                    |  |
| (4) .....                    |  |
| (5) Recovery phase           |  |
| (6) .....                    |  |

- (4) What do the symbols below indicate? Write in brief.



### Q.3: Answer the following:

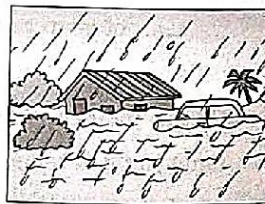
- (1) Write effects and remedy for following disasters.  
(a) Forest fire (b) Epidemic (c) Locus attack.
- (2) Following are the pictures of some disasters. How will be your pre and post-disaster management in case you face any of these disasters?



(a)



(b)



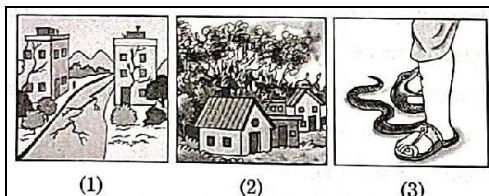
(c)



## ACTIVITY SHEETS FOR PRACTICE

### Q.4: Answer the following:

- (1) (a) Following are some pictures of disasters. Which precautions would you take during those disasters?



- (b) Define: Disaster management.  
(c) Write any two man-made disasters.

### Previous Year Question Papers (compilation)

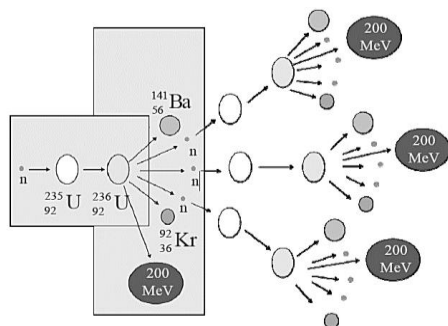
### Q.1: (A) Solve the following questions:

- (1) Match the columns:

| Group 'A'      | Group 'B' |
|----------------|-----------|
| a. Haemoglobin | (1) Skin  |
| b. Ossein      | (2) Blood |
|                | (3) Bones |

- (2) Find odd one out:  
Diabetes, Anaemia, Leukemia, Thalassemia.
- (3) Write the correct co-relation:  
Transverse Binary Fission : Paramoecium :: Longitudinal Binary Fission :
- (4) Who am I?  
I have suckers. I am blood sucking ectoparasite and my body is segmented.
- (5) Identify the process shown in figure and name it.

## ACTIVITY SHEETS FOR PRACTICE



- (6) Pranav and Pritee are twins in your class. They belong to \_\_\_\_\_ twins type.
- (7) There is a oil layer on the water surface of river in your area. What will you do?
- (8) Fill in the boxes with the help of the given clue:  
Continuous consumption of alcohol and tobacco material \_\_\_\_\_
- |   |  |  |  |  |  |  |   |  |
|---|--|--|--|--|--|--|---|--|
| A |  |  |  |  |  |  | O |  |
|---|--|--|--|--|--|--|---|--|
- (9) Find out the correlation:  
White revolution : Increase in dairy production :: Green revolution : \_\_\_\_\_.
- (10) Find odd one out:  
Drying, Salting, Cooking, Soaking with sugar.
- (11) Write the correct co-relation:  
Annelida: Earthworm :: Platyhelminthes: \_\_\_\_\_
- (12) State whether True/False:  
Tobacco containing substances cannot cause cancer of mouth and lungs.
- (13) Write function of testes.
- (14) I am connecting link between Reptilia and mammals. What is my name?

### Q.2: Choose the correct alternative and rewrite the sentences:

- (1) Calcareous spines are present on the body of \_\_\_\_\_ animal.
- (A) Fish (B) Snail  
(C) Sponge (D) Star fish

## ACTIVITY SHEETS FOR PRACTICE

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- (2) \_\_\_\_\_ beverage is obtained by fermentation of apple juice.  
(A) Cider (B) Wine  
(C) Coffee (D) Cocoa
- (3) \_\_\_\_\_ is man-made disaster.  
(A) Earthquake (B) Flood  
(C) Leakage of poisonous gas (D) Meteorite
- (4) \_\_\_\_\_ microbes provide organic manure to the paddy fields.  
(A) Azolla (B) Anabaena  
(C) Azotobacter (D) Acetobacter
- (5) The length of a sperm is about \_\_\_\_\_ micrometers.  
(A) 400 (B) 5  
(C) 60 (D) 600
- (6) Somatic and stem cells undergo \_\_\_\_\_ type of division.  
(A) meiosis (B) mitosis  
(C) budding (D) cloning
- (7) Which of the following is a man-made disaster?  
(A) Earthquake (B) Flood  
(C) Meteoric (D) Leakage of toxic gases
- (8) In a food chain autotrophic plants are present at the \_\_\_\_\_ level.  
(A) Tertiary nutrition (B) Secondary nutrition  
(C) Producer (D) Apex
- (9) \_\_\_\_\_ is a cold blooded animal.  
(A) Bat (B) Snake  
(C) Rabbit (D) Elephant
- (10) \_\_\_\_\_ is a connecting link between annelida and arthropoda.  
(A) Duck-billed platypus (B) Peripatus  
(C) Lungfish (D) Whale

## ACTIVITY SHEETS FOR PRACTICE

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- (11) Transfer of information from molecule of DNA to mRNA is called \_\_\_\_\_ process.  
(A) Transcription (B) Translation  
(C) Translocation (D) Mutation
- (12) 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
- (13) Incomplete combustion of fuels leads to formation of \_\_\_\_\_.  
(A) Carbon monoxide (B) Carbon dioxide  
(C) Chlorofluorocarbon (D) Hydrogen sulphide
- (14) The spindle fibres start appearing from \_\_\_\_\_ stage of karyokinesis.  
(A) Prophase (B) Metaphase  
(C) Anaphase (D) Telophase
- (15) 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.2: Answer the following questions

- (1) Hydroelectric energy, solar energy and wind energy are called renewable energies. Why?

- (2) Complete the following table:

| Plant/Microbes   | Function                                  |
|------------------|-------------------------------------------|
| 1. Pteris vitata | .....                                     |
| 2. Pseudomonas   | .....                                     |
| .....            | Absorption of uranium and arsenic         |
| .....            | Absorption of radiations of nuclear waste |

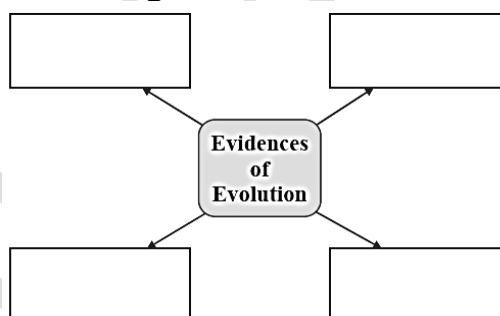
- (3) Define vestigial organs. Write any two names of vestigial organs in human body.

## ACTIVITY SHEETS FOR PRACTICE

- (4) Despite of various diagnostic tests, a couple could not have a child. In this situation, which remedies will you suggest?
- (5) Write any four harmful effects of consumption of alcoholic drinks on human body.
- (6) Complete the following table:

| Source                  | Microbe                   | Amino Acid  |
|-------------------------|---------------------------|-------------|
| Sugar molasses and salt | .....                     | Citric acid |
| .....                   | Lactobacillus delbrueckii | .....       |
| Corn steep liquor       | Aspergillus itaconius     | .....       |

- (7) First aid training is essential. Why?
- (8) Complete the following chart:



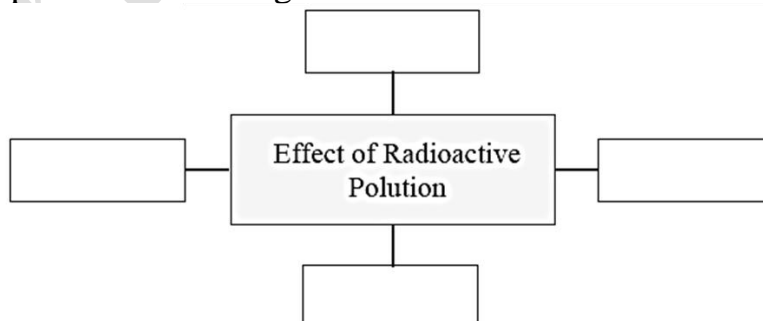
- (9) Draw a neat diagram of the structure of chromosome and label the parts:
  - a. Centromere
  - b. p-arm.
- (10) What are the advantages of hydroelectric power generation?
- (11) State any four benefits of animal classification.
- (12) State any four objectives of disaster management.
- (13) Give scientific reason:

## ACTIVITY SHEETS FOR PRACTICE

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

- (14) 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.
- What is the liberal view behind the organ and body donation?
  - Name any four organs that can be donated.
- (15) Indians should follow family planning for controlling the population.
- (16) We feel exhausted after exercising.
- (17) Hydroelectric energy, solar energy and wind energy are called renewable energies.
- (18) Complete the following chart:



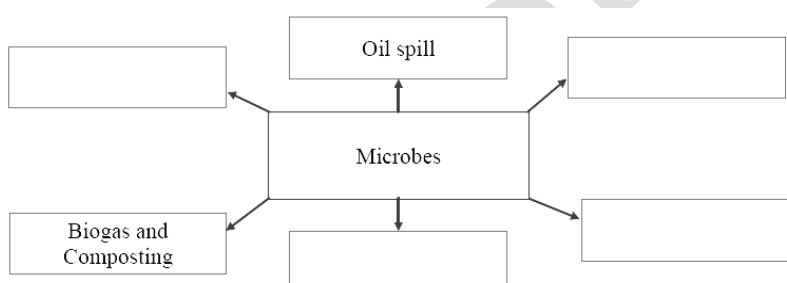
- (19) Distinguish between Aves and Mammalia.
- (20) By observing given picture, write any two effects of this disaster:

## ACTIVITY SHEETS FOR PRACTICE

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- (21) Explain four ways to minimize stress.
- (22) Complete the following conceptual picture:

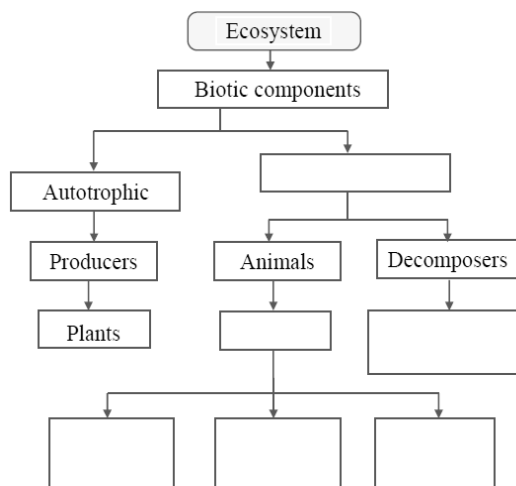


### Q.3: Answer the following questions:

- (1) What will you do? Why?
- Child of your neighbor is addicted to tobacco chewing?
  - Your friend has developed the hobby of snapping selfies.
  - Your sister has become incommunicable. She prefers to remain alone.
- (2)
- Write main types of vitamins.
  - Name water soluble vitamins.
  - Name fat soluble vitamins.

## ACTIVITY SHEETS FOR PRACTICE

(3) Complete the flow chart:



(4) What are the meaning of the following symbols? Write your role accordingly.



A



B



C

(5) The building in which you are residing has caught fire on the ground floor. What necessary rescue steps will you take?

(6) Explain with suitable examples importance of anatomical evidences in evolution.

(7) Answer the following questions:

- In our country, there seems to be lack of awareness regarding reproductive health. Why?
- Write the symptoms of disease gonorrhea.
- What precautions will you take maintain reproductive health?

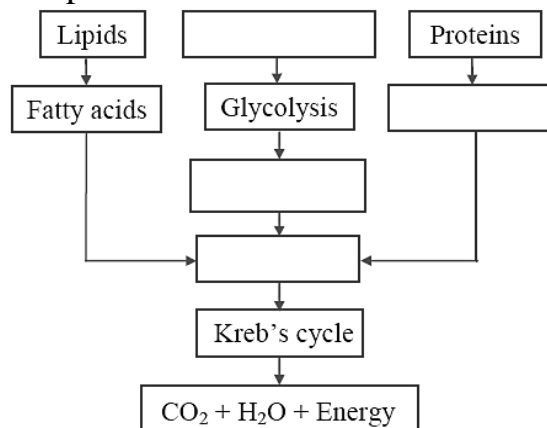
(8) Answer the following questions:

- What do you mean by central dogma?
- What is transcription?
- What is meant by triplet codon?



### ACTIVITY SHEETS FOR PRACTICE

- (9) Complete the following chart and state which process of energy production it represents:



- (10) (a) Playing games on mobile while eating is right or wrong. Justify.



- (b) What do you conclude from the following picture?

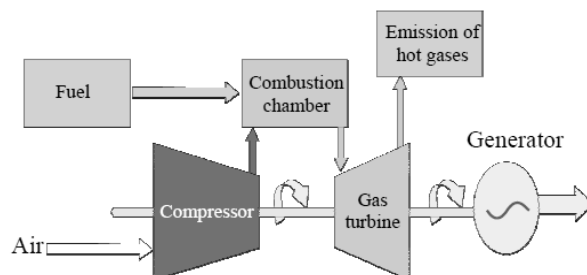


- (c) Observe the following picture and state what can be the outcome?



## ACTIVITY SHEETS FOR PRACTICE

(11) Observe the diagram and answer the questions:

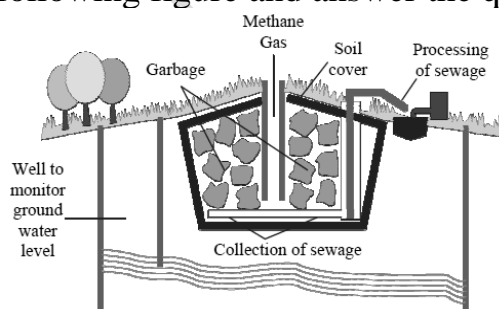


- Which energy is generated from the power plant?
- State its source.
- Which is more ecofriendly - Power generation from coal or Power generation from natural gas? Why?

(12) 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.

(13) Observe the following figure and answer the questions:



- Identify the process shown in the figure.
- Explain the process in short.

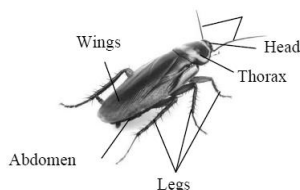
- (14) a. What is biotechnology?  
b. Explain any two commercial applications of it.

(15) Explain the importance of Anatomical evidences with examples.

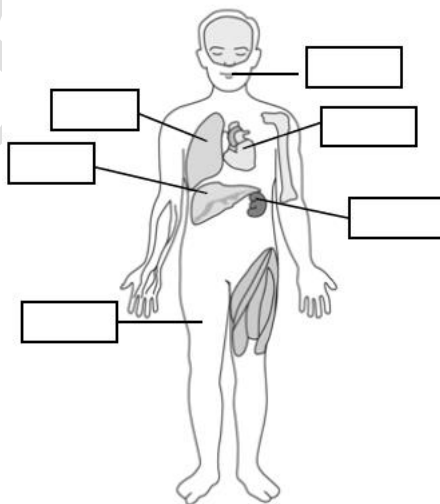
## ACTIVITY SHEETS FOR PRACTICE

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- (16) What will you do? Why?
- Child of your neighbor is addicted to tobacco chewing.
  - Your friend has developed the hobby of snapping selfies.
  - Your sister has become incommunicative. She prefers to remain alone.
- (17) Which precautions are necessary for proper decomposition of domestic waste?
- (18) Observe the following diagram. Write the answers of the following questions.



- To which phylum does the animal included in the diagram belong?
  - What is the exoskeleton made up?
  - What is the symmetry?
- (19) Explain the following concepts in short:
- Surrogacy
  - In Vitro Fertilization (IVF)
  - Sperm Bank
- (20) Label the body organization of human in the following figure:



#### ACTIVITY SHEETS FOR PRACTICE

- (21) 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 |

- (22) Complete the paragraph using proper words:

(Mechanical, Rhizobium, Aquatic, Toxic, CO<sub>2</sub>, 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: Answer any one of the following questions:

- (1) Identify the class of given animals and write one characteristic of each animal:
- a. Kangaroo                      b. Penguin                      c. Crocodile  
d. Frog                              e. Sea-horse
- (2) Draw schematic of power plant based on natural gas and answer the following questions:
- i. At which place natural gas power plant is situated in Maharashtra?  
ii. How is pollution reduced in natural gas based power plant?  
iii. Give two examples of eco-friendly electricity process.
- (3) a. Identify the following symbols and state their significance:  
b. How can biodiversity be conserved?



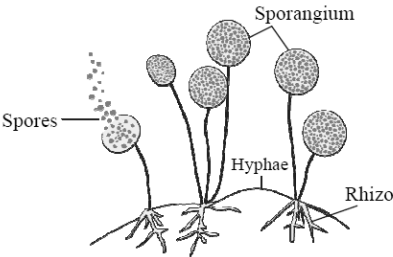
(1)



(2)

## ACTIVITY SHEETS FOR PRACTICE

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- (4) Answer the following questions:
- “Gender of child is determined by the male partner of couple.” Draw a diagram explaining the above statement.
  - Prepare a slogan for campaign against female foeticide.
  - In the following figure, explain how new fungal colonies of mucor are formed:
  - Identify and state the type of reproduction represented in the above figure.
- 
- (5) 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 |               |
- (6)
- What is Biotechnology?
  - Give one use of Biotechnology.
  - Give one commercial use of Biotechnology.
  - Write two bacterial examples of biofertilizer.
  - Write two names of crops genetically developed.

