

# N 653

Seat No.

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2024 III 20 1100 – N 653 – SCIENCE AND TECHNOLOGY (72) – PART II (E)

(REVISED COURSE)

Time : 2 Hours

(Pages 11)

Max. Marks : 40

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**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.**

P.T.O.

## 2/N 653

1. (A) Choose and write *correct* option number as answer : 5

(i) Regeneration occurs in .....

- (A) amoeba
- (B) paramoecium
- (C) euglena
- (D) planaria

(ii) *Lactobacillus brevis* gives us the beverage .....

- (A) cocoa
- (B) coffee
- (C) wine
- (D) cider

(iii) A minor change occurs due to change in position of any nucleotide is termed as .....

- (A) transcription
- (B) translocation
- (C) mutation
- (D) translation

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(iv) Atomic power plant in Maharashtra is .....

(A) Chandrapur

(B) Koyana

(C) Tarapur

(D) Anjanwel

(v) Example of phylum Arthropoda is .....

(A) scorpion

(B) starfish

(C) earthworm

(D) hydra

**(B) Solve the following :**

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(i) Pick the odd man out :

duckbill platypus, pomfret, lungfish, peripatus.

(ii) Write co-relation :

Skin : Melanin :: Pancreas : .....

P.T.O.

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(iii) State, true or false :

Production of various useful aquatic organisms with the help of water is called blue revolution.

(iv) Write full form of WHO.

(v) Match the pair :

**‘A’**

**‘B’**

(1) Male

(a) 44 + XX

(b) 44 + XY

(c) 44 + YY

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

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

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

(iii) We feel tired after exercise.

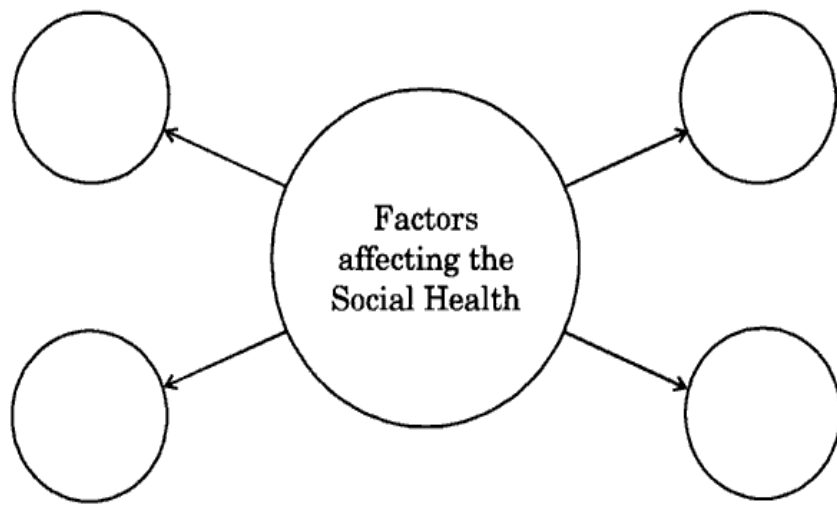
**5/N 653**

**(B) Answer any *three* of the following :**

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

(ii) Redraw and complete the given chart.



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

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

(v) What is DNA fingerprinting ? Where is it mainly useful ?

P.T.O.

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3. Answer any *five* :

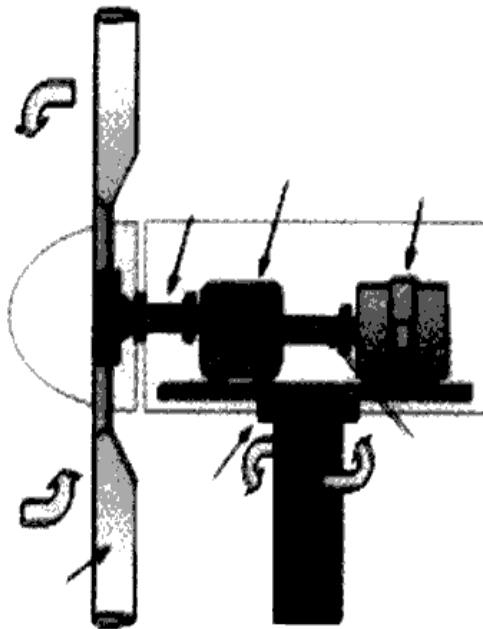
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- (i) (a) What are vitamins ?  
(b) Classify them according to their solubility.  
(c) Give *one* example of each type as per above classification.
- (ii) Explain the following terms :  
(a) Stem cells  
(b) Cloning  
(c) Genetically modified crops.
- (iii) Complete the given paragraph by filling the blank spaces from the options given in the bracket.  
  
[oxygen, pyridines, mechanical, CO<sub>2</sub>, petroleum, fatal, polyester, norcadial]  
  
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.

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However, bacteria like *Pseudomonas* spp. and *Alcanovorax borkumensis* have to ability to destroy the ..... and other chemicals. Hence, these bacteria are used to clear the oil spills. These are called as hydrocarbonoclastic bacteria (HCB). HCB decompose the hydrocarbons and bring about the reaction of carbon with ..... and water is formed in this process.

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



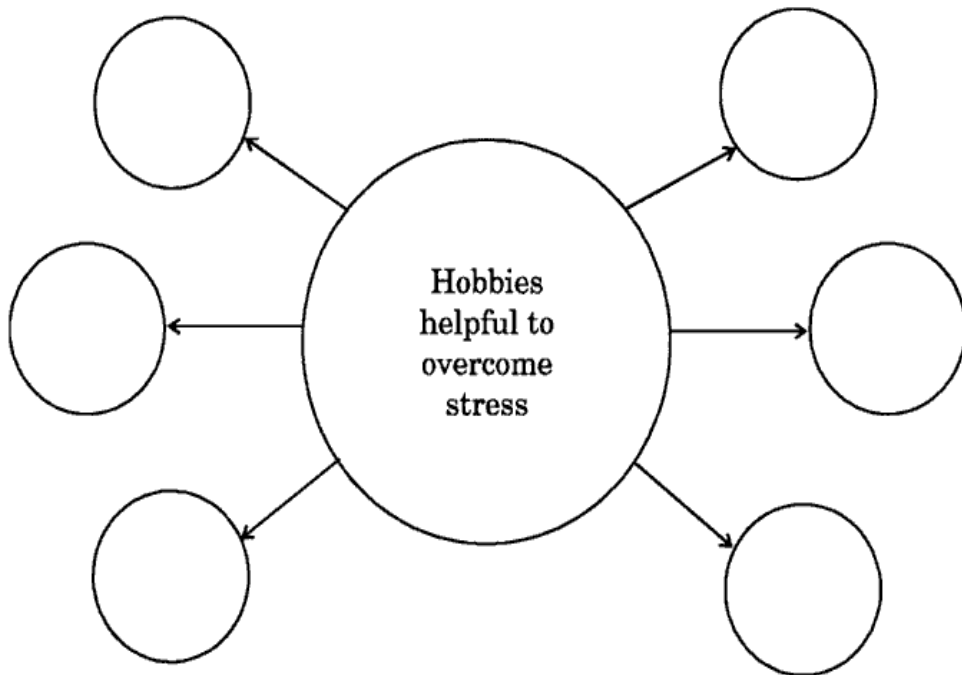
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*Questions :*

- (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 :

<https://www.maharashtrastudy.com>



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

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- (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.

P.T.O.

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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 :

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