MODEL QUESTION PAPER 2027

SCIENCE AND TECHNOLOGY — PART II

Std. X (S.S.C.) · Maharashtra State Board

Time: 2 Hours **Max. Marks: 40**

General instructions:

(1) All questions are compulsory.
(2) Use of a calculator is not allowed.
(3) The numbers to the right of the questions indicate full marks.
(4) For every MCQ [Q. 1(A)], only the first attempt will be evaluated.
(5) Draw scientifically correct, labelled diagrams wherever necessary.

Q. 1.

(A) Choose the correct alternative: **5**

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

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

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

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

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

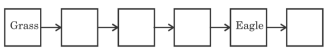
(B) Answer the following subquestions: **5**

(i) Give two commercial applications of Biotechnology.

(ii) Complete the table: Sr.No | Protein | Name of Organ. (1) ..... - Bones (2) Insulin - .....

(iii) Complete the following food chain.

(*i*) Complete the following food chain :



(*ii*) Distinguish between the following :

(iv) Write the correct co-relation: Diabetes : Insulin : : Cancer : .....

(v) Fill in the box with proper word: Kinetic Energy in wind -> ..... -> Electric energy.

(*iv*) Fill in the box with proper word :



(*v*) Match the correct pair :

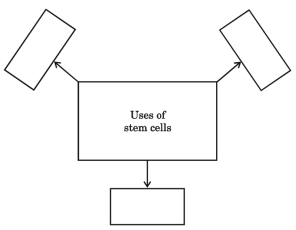
Column A	Column B

Q. 2.

(A) Give scientific reasons (any TWO): **4**

(i) Complete the following conceptual picture and write its uses in treatment of various diseases. [context: stem cells]

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



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

(ii) Write any two objectives of disaster management.

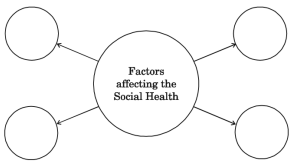
(iii) Give scientific reason: Hydroelectric energy, solar energy and wind energy are called renewable energies.

(B) Answer the following subquestions (any THREE): **6**

(i) Distinguish between Sexual reproduction and Asexual reproduction.

(ii) Redraw and complete the given chart: Factors affecting the Social Health.

(ii) Redraw and complete the given chart.



(iii) Write the correct word in the blank spaces: Hobbies to reduce stress - ..... (four boxes).

(iii) Write the correct word in the blank spaces :

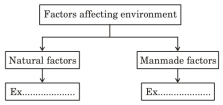


(iv) Write a short note on environmental conservation.

(v) Complete the concept map: Factors affecting environment - Natural factors (Ex. .....), Manmade factors (Ex. .....).

(i) Distinguish between Aerobic respiration and Anaerobic respiration.

(ii) Complete the concept map :



(iii) Write the correct word in the blank spaces :

Q. 3.

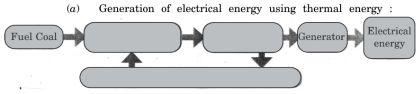
Answer the following subquestions (any FIVE): **15**

(i) (a) Define vestigial organs. (b) Write names of any two vestigial organs in human body. (c) Write the names of any two vestigial organs which are non-functional in human beings but functional in other organisms.

(ii) Complete the following flow chart: (a) Generation of electrical energy using thermal energy - Fuel Coal. (b) Energy transformation in thermal power plant - Chemical energy in coal -> Electrical energy.

(iv) Complete the following flow chart :

(a) Generation of electrical energy using thermal energy :



(b) Energy transformation in thermal power plant :



(v) Complete the paragraph with the help of words given in the

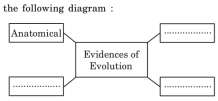
(iii) Name the type of cells in which mitosis occur? Write four stages of karyokinesis.

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

(v) Write the names of any six materials in first aid box.

(vi) Complete the following diagram: Evidences of Evolution - Anatomical, ... (complete the remaining evidences).

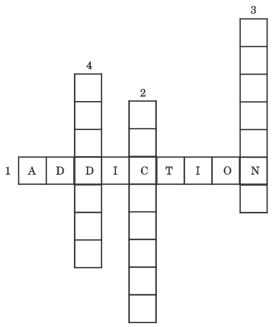
(i) Complete the following diagram :



(ii) Explain the process of glycolysis.

(vii) Solve the following crossword: (1) Continuous consumption of alcoholic and tobacco materials. (2) This app may cause cyber crimes. (3) A remedy to resolve stress. (4) Requirement for stress free life.

(*vii*) Solve the following crossword :



(1) Continuous consumption of alcoholic and tobacco materials.

(2) This app may cause cyber crimes.

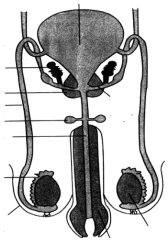
(viii) Complete the paragraph with the help of words given in the bracket (Lactobacillus cremoris, Protease, Cow, Vegetarian, microbiological, rennet, Geobacter, Saccharomyces): Cheese is produced on large scale from the abundantly available ..... milk all over the world. First chemical and ..... tests of milk are performed. Some colours and microbes like Lactobacillus lactis, ... and Streptococcus thermophilus are mixed with milk. It imparts sourness to the milk. After this, to impart the dense texture, whey needs to be removed. An enzyme ..... obtained from alimentary canal of cattle was being traditionally used earlier. However an enzyme ..... obtained from fungi is used at present to produce ..... cheese.

Q. 4.

Answer the following subquestions (any ONE): **5**

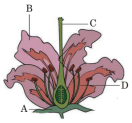
(i) [context: diagram of human reproductive system] Observe the diagram given below and answer: (1) Write the name of the reproductive system in the above diagram. (2) Name any two glands in the above diagram. (3) Mention any one duct in the above system. (4) What is the length of a sperm? (5) Which hormone is secreted by the testes?

(*ii*) Observe the diagram given below and answer the questions :



(ii) [context: flower diagram with parts A, B, C, D] Observe the diagram and answer: (a) Label the parts A, B, C, D shown in above diagram. (b) Write name of any one type of whorl. (c) Write any two components of Androecium. (d) Write any two components of Gynoecium.

(*i*) Observe the diagram and answer the questions :



(*a*) Label the parts A, B, C, D shown in above diagram.