

SAMPLE QUESTION PAPER - 1
Subject - Biology (044)
Class XII

Time Allowed: 3 hours

Maximum Marks: 70

General Instructions:

Read the following instructions very carefully and strictly follow them:

- All questions are **compulsory**.
- The question paper has five sections and **33** questions. All questions are compulsory.
- Section–A** has 16 questions of 1 mark each; **Section–B** has 5 questions of 2 marks each; **Section–C** has 7 questions of 3 marks each; **Section–D** has 2 case-based questions of 4 marks each; and **Section–E** has 3 questions of 5 marks each.
- There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION A

- The primary productivity in an ecosystem is expressed as: [1]
 (a) gm^{-2}yr (b) $\text{gm}^{-2}\text{yr}^{-1}$ (c) $\text{K cal m}^{-2}\text{yr}^{-1}$ (d) K cal m^{-2}
- Which of the following is the component of oral pills? [1]
 (a) Antibiotics (b) Oxytocin
 (c) Progesterone (d) Relaxin
- Just as a person moving from Delhi to Shimla to escape the heat for the duration of hot summer, thousands of migratory birds from Siberia and other extremely cold northern regions move to: [1]
 (a) Keolado National Park (b) Corbett National Park
 (c) Meghalaya (d) Western Ghat
- Amniocentesis is the withdrawal of amniotic fluid in: [1]
 (a) Menopause (b) Parturition (c) Gestation (d) Lactation
- Steroids are used in: [1]
 (a) All of these (b) Birth control
 (c) Treatment of hormonal imbalance. (d) Treatment of autoimmune diseases
- Physical removal of the large and small particle from the sewage through filtration and sedimentation is called: [1]
 (a) Primary treatment (b) Secondary treatment
 (c) Tertiary treatment (d) Quaternary treatment
- Genotypic and phenotypic ratio in monohybrid cross remains same in case of: [1]
 (a) Dominant and recessive genes (b) Pseudoallelic genes
 (c) Intermediate inheritance (d) Sex linked genes
- Picture shown below is an example of:- [1]



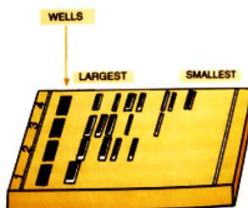
- Convergent evolution of Australian marsupials and placental mammals
- Divergent evolution of Australian marsupials and placental mammals
- Homologous organs of both animals
- Analogous organs of both animals

9. Bacteria and fungi in a forest ecosystem are generally: [1]
 (a) Producers (b) Primary consumers
 (c) Secondary consumers (d) Decomposers

10. In the pedigree analysis, the symbol shown below represent [1]



- (a) Sex unspecified (b) Affected individuals
 (c) Normal individuals (d) Matting between relatives
11. Which one of the following helps in absorption of phosphorus from soil by plants ? [1]
 (a) Rhizobium (b) Glomus (c) Frankia (d) Anabaena
12. In Gel Electrophoresis, fragments are moved from: [1]



1. Anode to Cathode 2. Cathode to Anode
 3. Negative to Positive 4. Positive to Negative
 (a) 1, 4 (b) 1, 3 (c) 2, 4 (d) 2, 3
13. **Assertion (A):** Reproductive health means total well-being in all aspects of reproduction, i.e., physical, emotional, behavioural, and social. [1]
Reason (R): A society with people having physically and functionally normal reproductive organs might be called reproductively healthy.
 (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.
14. **Assertion:** The primary effluent is passed into large aeration tanks where it is constantly agitated mechanically and the air is pumped into it. [1]
Reason: This allows vigorous growth of useful anaerobic microbes into flocs.
 (a) Assertion and reason both are correct statements and reason is correct explanation for assertion.
 (b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.
 (c) Assertion is correct statement but reason is wrong statement.
 (d) Assertion is wrong statement but reason is correct statement.
15. **Assertion (A):** Vertical distribution of different species occupying different levels in the ecosystem is called stratification. [1]
Reason (R): Trees occupy top vertical strata or layer of a forest, herbs, grasses the second and shrubs occupy the bottom layers.
 (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

16. **Assertion (A):** Homo sapiens have evolved from chimpanzee-like ancestors. [1]

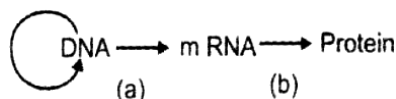
Reason (R): There is no difference between the two in the amino acid sequence of the protein Cytochrome-C.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
- (c) Assertion (A) is true, but Reason (R) is false.
- (d) Assertion (A) is false, but Reason (R) is true.

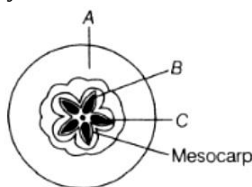
Section B

17. When a foreign DNA is introduced into an organism, how it is maintained in the host and how it is transferred to the progeny of the organism? [2]

18. The flow of genetic information is shown below. Name the process of (a) and (b). [2]

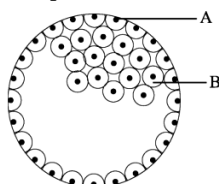


19. i. Given below is a TS of an apple. Identify A, B, and C. [2]



ii. Why is an apple categorised as a false fruit?

20. In the given figure, give the name and functions of parts labelled A and B. [2]



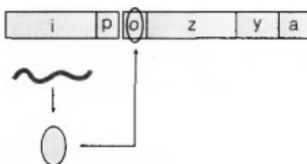
21. Write the various major steps of fermentation.

OR

What is LAB? What is its role in human stomach?

Section C

22. Given below is a schematic representation of a lac operon. Answer the following questions: [3]

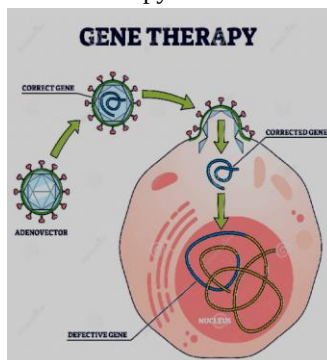


- i. Identify i and p.
- ii. Name the inducer for this operon.
- iii. Explain the function of inducer for this operon.

23. List any four symptoms of Down's syndrome. What is the basis of this disorder? [3]

24. Name the type of curve that characterizes most populations growing in favourable environment. Define carrying capacity [3]

25. The image below describes the process of Gene Therapy. [3]



- What is gene therapy?
 - Name the first clinical case in which it was used.
26. Differentiate between in situ and ex situ approaches of conserving biodiversity [3]

OR

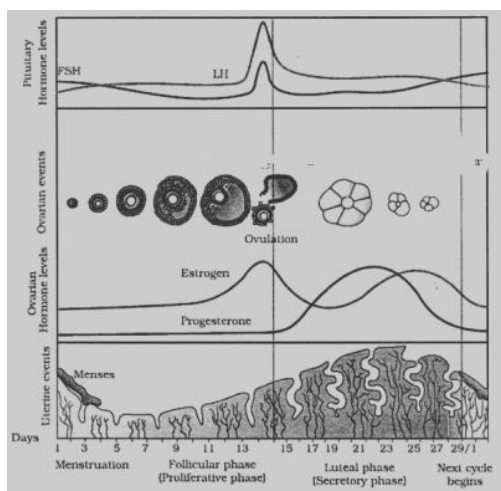
Alien species invasion has been a threat to biodiversity. Justify with the help of a suitable example. List any other three causes responsible for such a loss.

27. How did Louis Pasteur successfully demolish the popular theory of spontaneous generation? What were his conclusions? [3]
28. What are the misconceptions about the transmission or acquiring AIDS?

Section D

29. Read the following text carefully and answer the questions that follow: [3]

The reproductive cycle in female primates (e.g. monkeys, apes and human beings) is called the menstrual cycle. In human females, menstruation is repeated at an average interval of about 28/29 days, and the cycle of events starting from one menstruation till the next one is called the menstrual cycle. Anita has shown Diagrammatic presentation of various events during a menstrual cycle.



- What role do pituitary gonadotropins play during follicular & ovulatory phases of the menstrual cycle? (1)
- The first half of the menstrual cycle is called proliferative phase as well as follicular phase. Why? (1)
- Why does corpus luteum stay active throughout pregnancy and in the absence of fertilization, is active only for 10-12 days? (2)

OR

What happens to corpus luteum in human female if the ovum is

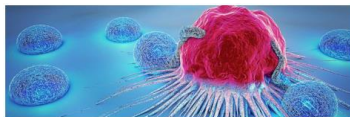
(2)

a. fertilised,

b. not fertilised?

30. Read the following text carefully and answer the questions that follow:**[4]**

Cancer refers to any one of a large number of diseases characterized by the development of abnormal cells that divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. Cancer often has the ability to spread throughout your body. Cancer is the second-leading cause of death in the world.



i. How does a cancerous cell differ from a normal cell?

(1)

ii. Benign tumor is less dangerous than malignant tumor. Why?

(1)

iii. Describe causes of cancer.

(2)

OR

Mention two methods of treatment of the disease.

(2)

Section E**31. Trace the development of microspore mother cell in the anther to a mature pollen grain.****[5]**

OR

Draw a labelled sketch of L.S. of pistil showing the progamous type of fertilization.

32. Which property of DNA double helix led Watson and Crick to hypothesise semi-conservative mode of DNA replication? Explain.**[5]**

OR

A single base mutation in a gene may not 'always' result in loss or gain of function. Do you think the statement is correct? Defend your answer.

33. i. Why must a cell be made 'competent' in biotechnology experiments? How does calcium ion help in doing so?

ii. State the role of 'biolistic gun' in biotechnology experiments.

[5]

OR

i. Explain how to find whether an E.coli bacterium has transformed or not when a recombinant DNA bearing ampicillin resistant gene is transferred into it.

ii. What does the ampicillin resistant gene act as in the above case?

***** End *****

For Solution
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the code

