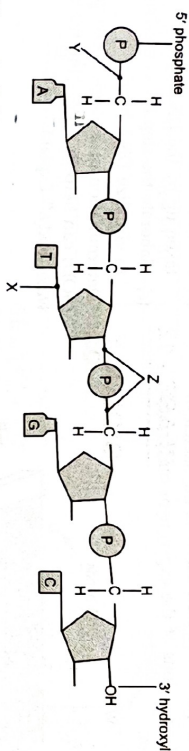


Q.31. (a) Study the diagram given below :



Name the linkages X, Y, Z and the respective molecules formed by them.
(b) Identify A, B, C and D in the table given below :

S. No.	Component-I	Component-II	Chemical linkage bonding the two components	Product
(i)	A	Pentose sugar	B	Nucleoside
(ii)	Nucleoside	Phosphate	C	Nucleotide
(iii)	Nucleotide	Nucleotide	D	Dinucleotide

Q.32. One day Anil went to his home town where he saw some farmers who were spraying agrochemical in their fields. He requested the farmers to stop spraying these chemicals and explained them the side effects of such agrochemicals.

- Now, answer the following questions :
- What are these chemicals ?
 - What did Anil explained to the farmers ?
 - Why biofertilizers are preferred to chemical fertilizers ?

Or

Ravi's father is a biotechnologist. Once his father meet his old friend, after long time. He found that his big landlord friend became very poor. Ravi's father asked the reason of his poverty. His friend told him that his land is suitable for growing cotton but every year his crop gets destroyed by

- Describe in sequence the process of microsporogenesis in angiosperms.
- Draw a median longitudinal section of human testis, show the different intra-testicular ducts.

Our Online Support

Link to Download : <https://bit.ly/3MNKBCQN>

Note : Solution of this paper will be available on 15th November 2023.

SAMPLE QUESTION PAPER - 6

CLASS - 12

BIOLOGY

Maximum Marks : 70

Time Allowed : 3 hours

General Instructions : Same as in Sample Question Paper- 1

SECTION - A

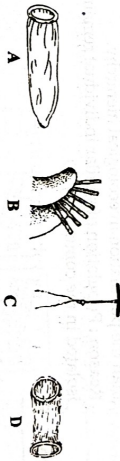
Q.1. If the base sequence of a codon in mRNA is 5' - AUG - 3' the sequence of tRNA pairing with it must be :

- 5' - UAC - 3'
- 5' - CAU - 3'
- 5' - AUG - 3'
- 5' - GUA - 3'

Q.2. In which of the following weeks of pregnancy CVS is done ?

- 12th - 14th week
- 8th - 10th week
- 5th - 7th week
- None of these

Q.3. Identify the figures of the contraceptive given below and select the correct option.



- Condom for female
- Implant for female
- Condom for male
- Condom for female

Q.4. Hugo de Vries proposed the mutation theory of organic evolution after his experiments on :

- garden pea
- evening primrose
- fruit fly
- four O'clock plant

Q.5. Which of following cells produce antibodies :

- B-lymphocytes
- Mast cells
- T-lymphocytes
- None of these

6.

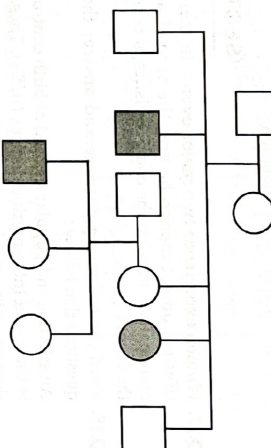
Q.6. AIDS is widely diagnosed by :

- Widal test
- ELISA
- PC
- Chromatography

Q.7. Restriction / in Restriction enzyme refers to :

- cleaving of phosphodiester bond in DNA by the enzyme
- cutting of DNA at specific position only
- prevention of the multiplication of bacteria
- all of these

Q.8. Study the pedigree given below and select the probable mode of inheritance and a human trait that follows this pattern of inheritance.



- Autosomal recessive, sickle cell anaemia
 - Sex linked recessive, Haemophilia
 - Autosomal dominant, Myotonic dystrophy
 - Sex linked dominant, colour blindness
- Q.9. Population dynamics is related to :
- increase in population
 - decrease in population
 - change in population
 - all of these

Q10. The interaction observed in the diagram is :

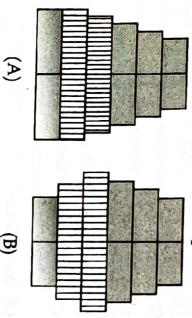


- (a) Commensalism (b) Competition
(c) Mutualism (d) Predation

Q11. India has only Δ per cent of the world's land area but its share of global diversity is B percent. Fill in the blanks A and B :

- (a) A - 2.4, B - 8.1 (b) A - 5.0, B - 8.1
(c) A - 8.1, B - 2.4 (d) A - 10.0, B - 23.0

Q12. Identify the two age pyramids A and B shown below and select the correct option :



- (a) A - Expanding population
B - Stable population
(b) A - Stable population
B - Expanding population

SECTION - B

Q17. Women experience two major events in their lifetime one at menarche and the second at menopause, mention the characteristics of both the events.

Q18. Read the following passage and answer the questions that follow :

An effective and popular method of birth control is the use of Intra-uterine devices (IUDs). These devices are inserted by qualified doctors or expert nurses in the uterus. The picture given below shows as IUD and another contraceptive device. Answer the questions that follow :



- (c) A - Stable population
B - Declining population
(d) A - Declining population
B - Stable population

Question No. 13 to 16 consist of two statements - Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below :

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true and R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

Q13. Assertion : In citrus, adventitious polyembryony occurs.

Reason : Polyembryony develops due to proliferation of nucellus.

Q14. Assertion : Genes pass from one generation to another.

Reason : The unit of inheritance are genes.

Q15. Assertion : Retroviruses are used efficiently as vectors in rDNA technological experiments.

Reason : *Agrobacterium tumefaciens* is the most commonly used vector for transformation of plant cells.

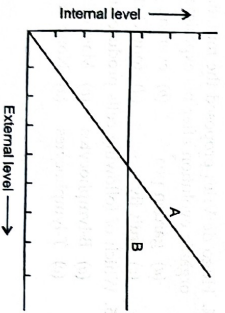
Q16. Assertion : Biotic community has higher position than the population in ecological hierarchy.

Reason : Population of similar individual remain isolated in the community.

(a) Name the type of contraceptive device shown in A. How does it function as a contraceptive device ? Name two other contraceptive devices that also function the same way as the one given in A.

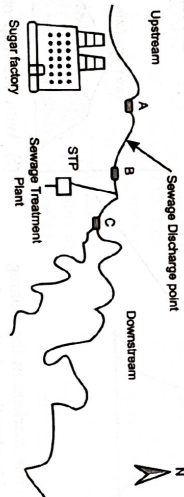
(b) Identify the IUD shown in B. Mention its mode of action as a contraceptive. Give two other examples.

Q19. (i) The graph given below represents the organisms response to temperature as an environmental condition.



- (a) Which one of the two lines represents conformers ?
(b) What does the other line in the graph represent ?

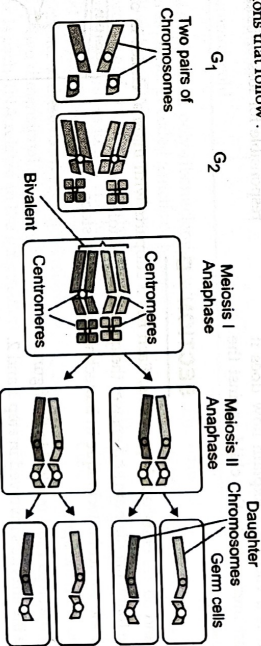
Q20. Water samples were collected at points A, B and C in a segment of a river near a sugar factory and tested for BOD level. The BOD levels of samples A, B and C were 400 mg/L, 480 mg/L and 8 mg/L respectively. What is this indicative of ? Why the BOD level gets reduced considerably at the collection point C ?



Q21. Give one word or two words equivalents for the following :

- (i) The inheritance of characters linked to X and Y chromosomes.
(ii) The basis of failure of two genes to assort independently.
(iii) The genetic phenomenon involving new combination of genes.
(iv) The individuals do not resemble one or the other parents.

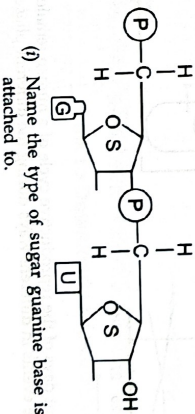
Observe the given diagram of meiosis and germ cell formation in a cell with four chromosomes and answer the questions that follow :



- (a) Which law of inheritance is shown by the figure ?
(b) Define law of dominance.

SECTION - C

Q22. Answer the questions based on the dinucleotide shown below :



(i) Name the type of sugar Guanine base is attached to.

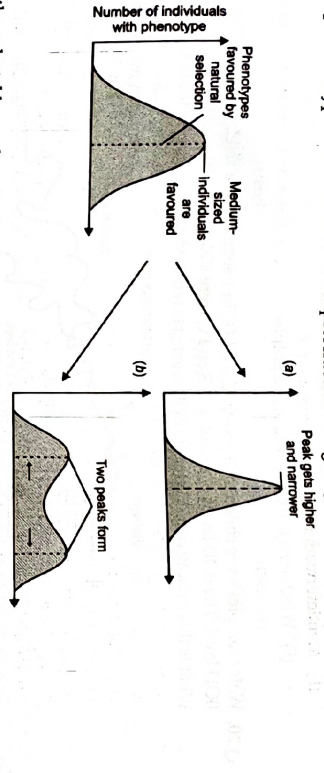
(ii) Name the linkage connecting the two nucleotides.

Q23. In angiosperms, zygote is diploid while primary endosperm cell is triploid. Explain.

Q24. A popular TV programme shows that in some villages of Rajasthan, infant girls are killed soon after their birth. Answer the following questions based on the above information :

- (i) Do you approve such practice ?
(ii) What impact does it have on population ?
(iii) How can you help in stopping such practices ?

Q.25 Name and explain the types of natural selection represented in the figure given below :



Q.26. (a) Name the selectable markers in the cloning vector pBR 322. Mention the role they play. (b) Why is the coding sequence of an enzyme β -galactosidase a preferred selectable marker in comparison to the ones named above ?

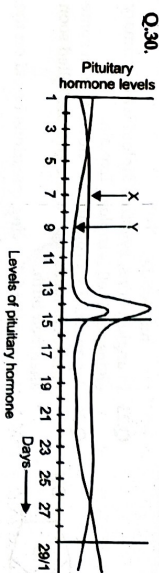
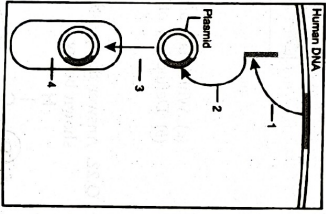
Q.27 Under polio prevention programme, infants in India were given polio vaccines on a large scale at regular intervals to eradicate polio from the country. (a) What is a vaccine ? Explain how does it impart immunity to the child against the disease.

(b) With the help of an example differentiate between active and passive immunity. Or Describe briefly the following : (a) Origin of replication (b) Bioreactors (c) Downstream processing

SECTION - D

Question No. 29 and 30 are case-based questions. Each has 3 subparts with internal choice in one subpart. Q.29. Observe the following diagram and answer the questions that follow :

- (a) Name the particular technique in Biotechnology, whose steps are shown in the figure.
 - (b) Name the steps 1 to 4 marked in the figure.
 - (c) Name the enzymes involved in step 1 and 2.
- Or
- Give an example where a human gene product is obtained from transgenic bacteria.



Q.30. The levels of pituitary hormones during the different days of the reproductive cycle of a human female are shown in the graph given above. They influence the events in different ways during the different phases of the menstrual cycle.

- (a) Name the hormones labelled X and Y in the graph given above.
 - (b) Mention two functions of the hormone X.
 - (c) What is the effect of the peak levels of hormone X on the ovarian events ? Mention its functions.
- Or
- Name the hormone and its source gland, which stimulates the secretion of the hormones X and Y.

SECTION - E

Q.31. Monu's uncle is a diabetic patient and is dependent on insulin. Monu went to his uncle, his uncle told him that diabetes has become a very common problem due to change in life style and a lots of people need insulin for its treatment. Earlier, it was obtained from animals and was short in supply and costly but biotechnology has helped in making it cheaper and easily available.

Now, answer the following questions :

- (i) How many amino acids are present in a human insulin ?
- (ii) What is the function of insulin ?
- (iii) How biotechnology is helpful in insulin production ?
- (iv) Which bacteria is used in the production of insulin by genetic engineering ?

The following table shows certain diseases, their causative organisms and symptoms. Fill in the gaps.

Name of the Disease	Causative Organism	Symptoms
(i) Ascariasis		
(ii) Ringworm		
(iii) Typhoid		
(iv) Pneumonia		
(v) Common cold		

Q.32. RNA is a single chain poly-ribonucleotide which functions as carrier of coded genetic or hereditary information from DNA to cytoplasm for taking part in protein and enzyme synthesis. It contains 70-1200 ribonucleotides joined end to end.

- (i) What are the three types of RNA ?
 - (ii) Which one of these has the shape of a clover-leaf in two dimensional structure ?
 - (iii) How is each RNA related in the information flow during protein synthesis ? Explain.
- Or
- Q.33. Trace the events that would take place in flower from the time of pollination upto the completion of fertilisation.

Explain process of fertilisation and implantation in human.

Or

Given below are the sequence of nucleotides in a particular mRNA and amino acids coded by it :
 UUUAUGUUGAGUGUAGUUA
 Phe - Met - Phe - Cys - Leu - Val

Our Online Support

Scan QR Code to Download

Link to Download : <https://bit.ly/45MIMNJ>

Note : Solution of this paper will be available on 15th November 2023.

367