KENDRIYA VIDYALAYA SANGTHAN

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QUESTION BANK (BIOLOGY)

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CHAPTER: 1 **REPRODUCTION IN ORGANISMS**

One Mark Questions

1. Name the kind of reproduction in bees in which drones are produced.
2. What is special in flowering of bamboo?
3. What is meiocyte?
4. Which is better mode of reproduction, sexual or asexual?
5. Define Geitonogamy.
6. Why is the apple referred to as a false fruit?
7. Define clone.
8. What are conidia?
9. Mention the site where syngamy occurs in amphibians and reptiles.
10. What is antherozoid?
11. What is menstrual cycle?
12. Define continuous breeders.
13. What are hermaphrodites?
14. Name one plant and animal in which external fertilisation takes place.
15. Write two advantages of vivipary.
16. In which type of life cycle does a zygote undergoes (a)Mitosis (b) Meiosis
17. How does potato multiply?
18. How do the following organisms reproduce: Paramecium and Penicillium?
19. State the function of a vegetative propagule.
20. How will you grow a banana and a ginger plant?

Two Mark Questions

1. Name the four stages of life span.
2. Differentiate between parthanocarpy and parthenogenesis.
3. Differentiate between syngamy from fertilisation.
4. Draw the sketches of a zoospore and a conidium. Mention two dissimilarities between them and at least one feature common to both structures.
5. Define external fertilisation. Mention its disadvantages.
6. The cell division involved in gamete formation is not of the same type in different organisms. Justify.
7. How does the floral pattern of Mediterranean orchid *Ophrys* guarantee cross pollination?
8. Why dogs and cats have oestrous cycles but human beings have menstrual cycle, though all are mammals?
9. Why do hilly areas of Kerela, Karnataka and Tamil Nadu transform into blue stretches that attracts many tourists?
10. What regulates the reproduction processes and the associated behavioural expressions in organisms?

Three Mark Questions

1. How do roots take part in vegetative propagation?
2. How does yeast produce asexually? Show it diagrammatically.

3. Coconut palm is monoecious while date is dioecious. Why are they called so?
4. The unicellular organisms which reproduce by binary fission are considered immortal. Justify.
5. Differentiate between (a)oestrus and menstrual cycles (b) ovipary and vivipary. Give an example for each type.
6. What are heterogametes? What do we call these gametes individually?

Five Mark Questions

1. Explain the following terms (i)neoteny (ii) polyembryony (iii) parthenogenesis
2. Describe the major events in sexual reproduction.
3. Describe the five mode of asexual reproduction.
4. Describe the post fertilisation changes in aflower.

CHAPTER: 2 **SEXUAL REPRODUCTION IN FLOWERING PLANTS**

One Mark Questions

1. What kind of structures is formed at the end of microsporogenesis and megasporogenesis?
2. Write the function of coleoptiles.
3. What is funiculus?
4. What features of flowers facilitate pollination by birds?
5. Why are pollen grains produced in enormous quantities in maize?
6. Name the type of pollination in self-incompatible plants.
7. Define parthenocarpy.
8. Name the landing platform for pollen grains.
9. What is microsporogenesis?
10. Name the substance of which the intine and exine is made.
11. Wind pollinated flowers are not visited by honey bees. Give two reasons.
12. Why is emasculation done in the process of hybridization?
13. What do you understand by double fertilization?
14. What is an anatropous ovule?
15. A bilobed, dithecous anther has 100 microspore mother cells per microsporangium. How many male gametophytes this anther can produce?
16. What is sporopollenin?
17. What is the shield shaped single cotyledon of monocots called?
18. Name one plant each where pollination occurs with the help of a) Water b) Bats
19. Why do most zygotes develop after certain amount of embryo is formed?
20. What is polyembryony?

Two Mark Questions

1. Describe the structure of a microsporangium with a neatly labeled diagram.
2. The flower of brinjal is referred to as chasmogamous while that of beans is clerstogamous. Why?
3. Mention strategies involved to prevent self-pollination in flowers.
4. Banana is a parthenocarpic fruit whereas oranges show polyembryony. How are they different from each other with respect of seeds?

5. Why pollen grains can remain well preserved as fossils?
6. Explain any two devices by which autogamy are prevented in flowering plants.
7. What is self incompatibility? Why does self pollination not lead to seed formation in these species?
8. How many haploid cells are present in a mature female gametophyte of a flowering plant? Name them.
9. How are the cells arranged in an embryo sac?
10. What is geitonogamy? Give its one similarity to autogamy and xenogamy.
11. Why are cleistogamous flowers invariably autogamous?
12. Where is sporopollenin in plants? State its significance with reference to its chemical nature.
13. State the characteristics of insect pollinated flowers.
14. Mention the function each of the following; i) tassels of corn cob ii) tepetum in the microsporangium.
15. Differentiate between chasmogamous and cleistogamous flowers
16. What is pericarp? Mention its functions.
17. Where does the triple fusion take place in a flowering plant? Why is it so called?
18. Which type of pollination ensures the arrival of genetically different pollen grains to stigma?
19. What relationship exists between a species of moth and Yucca plant?
20. Mention the reasons for difference are ploidy of zygote and primary endosperm nucleus in an angiosperm?
21. What are cleistogamous flowers? Can cross – pollination occurs in cleistogamous flowers. Give reason?
22. Draw a labeled diagram of mature embryo sac & label the following
    i) Egg cell ii) Antipodal cells iii) Synergids iv) Polar nuclei
23. Mention two strategies evolved lay flowers to prevent self-pollination
24. Draw a well labeled diagram of longitudinal section of pistil showing pollen germination?
25. List the advantages of pollination to angiospermic plants?

Three Mark Questions

1. Differentiate between microsporogenesis and megasporogenesis.
2. What are the differences between self and cross pollination?
3. Why angiosperm anthers are called dithecous? Describe the structure of its microsporangium.
4. How does endosperm in angiosperms become triploid?
5. Explain the stages involved in the maturation of a microspore into a pollen grain.
6. Describe different types of pollination.
7. What is triple fusion? Where does it occur?
8. What is apomixes and what is its importance?
9. Draw a diagram of L.S. pf an anatropous ovule of an angiosperm and label the following parts. i) nucellus ii) integument iii) antipodal cells iv) secondary nucleus.

10. Explain the structure of an anatropous ovule with a neat labeled diagram?
11. What is agamospermy? How is agamospermy different from parthenogenesis and parthenocarpy?
12. Describe the structure of a pollen grain.
13. Enlist the advantages offered by seeds to angiosperms.
14. Give any three advantages of sexual incompatibility.
15. List any three differences between wind pollinated flower & insect –pollinated flower.
16. Trace the development of microsporocyte into mature pollen grains.
17. Differentiate between Geitonogamy & Allogamy.
18. Draw a diagram of L.S. of an anatropous ovule of an Angiosperm & label the following parts :-(i) Nucellus (ii) Integument(iii) Antipodal cells (iv) Secondary Nucleus.
19. Why is process of fertilization in flowering plants referred to as double fertilization?
20. i) Explain the structure of a maize grain with the help of a diagram
    ii) Why cannot we use the term maize seeds for maize grains?
21. Trace the development of megasporocyte into mature ovule.
22. Incompatibility is the natural barrier in fusion of gamete". Justify this statement.
23. How dose pollination takes place in salvia. List any four adaptations required for such type of pollination.

Five Mark Questions

1. Explain the formation of an embryo sac with diagrams.
2. Explain the development of embryo in a dicotyledonous plant with neatly labelled diagrams.
3. (a) What is double fertilization? Write three post fertilization changes leading to the formation of seed.(b) differentiate monoecious and dioecious plants. Give one example of each.
4. What develops into a microspore mother cell in a flower? Trace the development of this cell into a pollen grain which is ready for germination. Draw a labelled figure of a mature pollen grain.
5. Trace the events that would take place in a flower from the time the pollen grain of the same species falls on the stigma up to the completion of fertilisation.
6. i) Why is zygotes dominant for sometime in fertilized ovule?
   ii) What is polyembryony? Give an example.
   iii) In fruits, what is formed from following parts:-
   a) Ovary wall b) Outer integument c) Inner integument d) zygote
   e) Primary endosperm f) Ovary g) Nucellus

CHAPTER: 3 **HUMAN REPRODUCTION**

One Mark Questions

1. Why are male testes located outside the abdominal cavity?
2. What is acrosome?
3. State the function of leydig cells.

4. What is corpus luteum?
5. Where do we find fimbriae?
6. Expand i) HCG ii) FSH
7. What is semen?
8. What do you mean by foetal ejection reflex?
9. Define parturition.
10. What is corona radiate?
11. Where does fertilization normally takes place in a human female.
12. List the changes that the primary oocyte undergoes in the tertiary follicular stage in the human ovary.

13. Name the substance present in the sperm acrosome & which help in sperms entry into egg.
14. Name the layer of cells that forms the outer wall of blastocyst.
15. At what stage is the mammalian embryo implanted in uterus?
16. Despite the presence of So many sperms in the vicinity of an egg cell, onlyone sperm enters the ovum. Why?
17. How many polar bodies are given out in production of one egg duringcogenesis?

Two Mark Questions

1. Describe the structure of a sperm with a diagram.
2. Who discovered Sertoli cells? Mention their role in spermatogenesis?
3. Enlist any two functions of a female placenta.
4. Define spermiogenesis and spermiation.
5. What is the number of chromosomes in the following cells? Primary oocyte,secondary oocyte, ootid and follicle.
6. What is seminal plasma? What are its components?
7. What is corpus luteum? How does it function as endocrine gland?
8. Where are leydig cells located? What do they secrete?
9. Which organs together form the female reproductive system?
10. Draw well labeled diagram of T.S. of ovary?
11. What is ovulation? What happen to the graffian follicle after ovulation?
12. Why testes of human males are considered extra abdominal? What is thesignificance of this condition?
13. Name the hormones produced only during pregnancy in human female. Mention their source organ.
14. Draw a diagram of the T.S. of seminiferous tubule of testis of an adult humanmale & label any four parts in it.
15. What function do fallopian tubes perform?
16. What is colostrum? What is its significance to new born baby?

Three Mark Questions

1. A sperm has just fertilized a human egg in the fallopian tube. Trace theevents that the fertilized eggs will undergoes up-to implantation of blastocystin the uterus.

2. Where oogenesis does takes place. Describe the stages of this process?Briefly describe the stages of spermatogenesis in human?
3. Describe the hormonal control of human male reproduction system with thehelp of a flow chart & highlight the inhibitory & stimulatory directions in it?
4. What are the various male accessory glands? Give their function.
5. Explain the menstrual cycle with a diagram.
6. Differentiate between spermatogenesis and oogenesis.
7. 'A fertilized egg is the blue print of future development'. Explain
8. Name the source of gonadotropins in human females. Explain the changes brought about in the ovary by these hormones during menstrual cycle.
9. First half of the menstrual cycle is called proliferative phase as well as follicular phase. Explain.
10. Why does meiosis and mitosis occur in germ cells?
11. What happen to the blastocyst immediately after implantation?
12. Why does corpus luteum secrete large amount of progesterone during luteal/secretory phase of the menstrual cycle?

Five Mark Questions

1. Explain the development of human embryo with diagrams.
2. What is menstruation? What are the specific actions of FSH, LH, estrogen &progesterone in menstrual cycle?
3. A woman has conceived & implantation has occurred within her uterus.Discuss the sequence of changes up to parturition which will take placewithin her body under the influence of various hormones.
4. (a) When and how does placenta develop in human female?
   (b) How is the placenta connected to the embryo?
   (c) Placenta acts as an endocrine gland. Explain.
5. Give a schematic representation of oogenesis in human. Mention the number of chromosomes at each stage. Correlate the life phases of the individual with the stage of the process.

CHAPTER: 4 **REPRODUCTIVE HEALTH**

One Mark Questions

1. What is lactational amenorrhoea?
2. Write the scientific name of causative agents of:--i) Syphilis ii) Gonorrhoea.
3. Give two examples of natural methods of contraception.
4. What is meant by artificial insemination?
5. Name the technique by which one can disorder any possible chromosomal or metabolic disorders in foetus.
6. Mention early symptoms of STDs.

7. Expand the following :-- i) GIFT ii) ICSI iii) IUCD
8. Expend ZIFT and RTI.
9. What is the WHO's interpretation of reproductive health?
10. Why has the Government imposed a statutory ban on amniocentesis?
11. Expand MTP and ICSI.
12. What is sterilisation?

Two Mark Questions

1. "Removal of Gonads cannot be a contraceptive option". Why?
2. What are MTPs? Under what conditions MTPs are legally permitted?
3. Describe the lactational amenorrhea method of birth control.
4. Describe the technique which is used for sex determination in foetus?
5. Write the role of hormones in contraception.
6. What are test tube babies? Are they different from normal babies?
7. Mention any four objectives of RCHC.
8. How do pills act as contraceptives in human female?
9. Name the two sexually transmitted diseases and their causative organisms.
10. What does GIFT represent?
11. Why is medical termination of pregnancy carried out?
12. How does Cu- T act as a contraceptive?
13. Why is the term test tube baby a misnomer?
14. Mention any four probable reasons for the rapid rise of population in our country?
15. Identify the device used for the following methods of birth control: Barrier,IUD, Surgical technique and administering hormone.
16. What are STDs? Mention any two of it.
17. Within what age group sexually transmitted diseases are reported to be very high. Mention three practices to avoid them.

Three Mark Questions

1. Enlist any three causes of infertility in men and women.
2. Explain the permanent methods of birth control.
3. State the consequences of over population.
4. All reproductive tract infections (RTIs) are STDs but all STDs are not RTIs. Justify with example.
5. Describe the technique by which genetic disorder in a developing foetus can be detected?
6. Differentiate between natality rate and mortality rate.
7. Explain any one natural method of birth control.
8. Explain the zygote intra fallopian transfer technique. How is intra uterine transfer technique different from it?
9. Describe the three manners in which fertilization of human ovum by spermcan be prevented?
10. Briefly explain IVF and ET. What are the conditions in which these methods are advised?

11. Suggest some methods to assist infertile couples to have children?

Five Mark Questions

1. What do you mean by reproductive health? Mention the different way in which people are made aware of the significance of reproductive healthy society.
2. Describe the various methods of birth control.
3. Describe the vasectomy and tubectomy with diagram.
4. Suggest the aspects of reproductive health which need to be given special attention in the present scenario.

CHAPTER: 5 **PRINCIPLES OF INHERITANCE AND VARIATION**

One Mark Questions

1. Name the phenomena that occur when homologous chromosomes do notseparate during meiosis.
2. How allele is different from allelomorph?
3. Define the gene pool.
4. Name one trait each in humans & in drosophila whose genes are located onsex chromosome.
5. What is crossing over?
6. What is meant by aneuploidy?
7. What is monosomic condition?
8. What genetic principle could be derived from a monohybrid cross?
9. Which one change is the cause of sickle – cell anaemia?
10. What is a test cross?
11. What is mutagen? Give an example?
12. What was the total number of varieties of garden pea which Mendel had taken tostart his experiment?
13. Name any one plant & its feature that shows the phenomena of incompletedominance?

Two Mark Questions

1. Give any two similarities between behaviour of genes (Mendel's factor)during inheritance & chromosomes during cell division.
2. What is co-dominance? State one example in human.
3. Do variations appear in clones also? How?
4. Which law of Mendel is universally accepted? State the law?
5. How will you find out whether a given plant is homozygous orheterozygous?
6. Why do sons of haemophilic father never suffer from this trait?
7. What do you understand by a phenotype and a genotype? Explain by giving an example?
8. Differentiate between back cross and test cross.
9. How is the child affected if it has grown from the zygote formed by an XX-eggfertilized by Y-carrying sperm? What do you call this abnormality?

10. Haemophilia victims are mostly men. Very rarely women are affected by this defect. Why?
11. Explain the pleiotropy with the help of an example.
12. The map distance in certain organism between genes A & B is 4 units,between B & C is units, & between C & D is 8 units which one of these genepaves will show more recombination frequency? Give reason.
13. What are linked genes? How can a pair of linked genes be identified?
14. Give the chromosomal constitution & related sex in each of the following :-i) Turner syndromeii) Klinefilter syndrome
15. What is pedigree Analysis? How is it useful?
16. Explain the sex determination mechanism in human. How is it different in birds?
17. What are multiple alleles? Give an example?
18. What is trisomy? Give an example.

Three Mark Questions

1. In Antirrhinum majus a plant with red flowers was crossed with a plantwith white flowers. Work out all the possible genotypes & phenotypes of F1& F2 generations comment on the pattern of inheritance in this case?
2. (a) Explain the phenomena of dominance, multiple allelism and co-dominance taking ABO blood group as an example.
   (b) What is the phenotype of the following: I^Ai, ii
3. A red eyed male fruitfly is crossed with white eyed female fruitfly. Work outthe possible genotype & phenotype of F1 & F2 generation. Comment on thepattern of inheritance in this cross?
4. Give reasons for the success of Mendel's experiments.
5. A man with AB blood group marries a woman with O group blood.(i) Work out all the possible phenotypes & genotypes of the progeny.(ii) Discuss the kind of domination in parents & progeny in this case?
6. Explain the chromosomal theory of inheritance.
7. (a) explain the sex determination in human
   (b) How do human males with XXY abnormality suffer?
8. In a cross made between a hybrid tall & red plant (TtRr) with dwarf & whiteflower (ttrr). What will be the genotype of plants in F1 generation?
9. In one family, each of the four children has a different blood group. Explain with the help of a cross.
10. How sex is determined in human brings?
11. Work out a typical Mendelian dihybrid cross and state the law that he derived from it.
12. A smooth seeded & red – flowered pea plant (SsRr) is crossed with smoothseeded & white flowered pea plant (Ssrr). Determine the phenotypic &genotypic ratio in f1 progeny?
13. Why is a man unable to pass on a sex linked gene to his son?

Five Mark Questions

1. A dihybrid heterozygous tall & yellow pea plant was crossed with double recessive plant.
   (i) What type of cross is this?
   (ii) Work out the genotype & phenotype of progeny
   (iii) What principle of Mendel is illustrated through result of this cross?
2. Differentiate between dominance, co-dominance & Incomplete dominance with one example each.
3. Mention any two autosomal genetic disorders with their symptoms.
4. In dogs, barking trait is dominant over silent trait & erect ears are dominant over drooping ears. What is the expected phenotypic ratio of offspring when dogs heterozygous for both the traits are crossed?
5. Write the symptoms of haemophilia and sickle cell anaemia in human. Explain how the inheritance pattern of the two diseases differs from each other.

CHAPTER: 6 **MOLECULAR BASIS OF INHERITANCE**

One Mark Questions

1. Name the process in which unwanted mRNA regions are removed & wantedregions are joined.
2. What do you mean by nucleoid?
3. Give the initiation codon for protein synthesis. Name the amino acid it codesfor?
4. How many base pairs are present in one turn of DNA helix and what is the distance between consequent base pairs in a helix?
5. In which direction, the new strand of DNA synthesised during DNA replication.
6. What is the function of amino acyl tRNA synthetase?
7. What is point mutation?
8. Name the enzyme that joins the short pieces in the lagging strand duringsynthesis of DNA?
9. Write the central dogma of molecular biology?
10. Name the enzyme which helps in formation of peptide bond?
11. Who experimentally prove that DNA replication is semi conservative?
12. What is a codon?
13. At which ends do capping and tailing of hnRNA occur, respectively?
14. What do you understand by transformation?
15. Name the three non-sense codons?
16. What do you mean by non-sense codon?
17. What is the base pairing pattern of DNA?
18. Mention the dual functions of AUG?
19. Mention how DNA polymorphism arises in a population.

Two Mark Questions

1. “DNA polymerase plays a dual function during DNA replication” comment onstatement?
2. List the salient features of double helix structure of DNA.
3. Three codons on mRNA are not recognised by tRNA what are they? What is thegeneral term used for them what is their significance in protein synthesis?
4. List the major function of genes.
5. Give two reasons why both the strands of DNA are not copied during DNAtranscription?
6. Why is it essential that tRNA binds to both amino acids & mRNA codonduring protein synthesis?
7. What is peptide bond? How is it formed?
8. Explain what happens in frameshift mutation? Name one disease causedby the disorder?
9. What do you mean by “Central Dogma of Molecular genetics?”
10. List two essential role of ribosome during translation.
11. Give two reasons why both the strands are not copied during transcription?
12. Why is human Genome project considered as mega project?
13. State the functions of the tRNA and rRNA in a prokaryote.
14. Why are DNA & not RNA is the genetic material in majority of organisms?
15. Mention any four important characteristics of genetic code.
16. Draw the structure of a tRNA charged with methionine.
17. Why it is that transcription & translation could be coupled in prokaryoticcell but not in eukaryotic cell?
18. How do histones acquire positive charge?
19. A citron consists of 20 codons. How many amino acids will it code in the polypeptide transcribed? Why?
20. How are the structural genes activated in the lac operon in E. coli?

Three Mark Questions

1. What is transformation? Describe Griffith’s experiment to show transformation?What did he prove from his experiment?
2. Explain the role of S^{35} and P^{32} in the experiments conducted by Hershey and chase.
3. The base sequence on one strand of DNA is ATGTCTATAi) Give the base sequence of its complementary strand.ii) If an RNA strand is transcribed from this strand what would be thebase sequence of RNA?iii) What holds these base pairs together?
4. Draw a labelled schematic sketch of replication fork of DNA. Explain the role of the enzymes involved in DNA replication.
5. Why is the human genome project called a mega project?
6. What is DNA fingerprinting? Mention its application.
7. State the conditions when genetic code is said to be: - i) degenerate, ii) universal, iii) unambiguous and specific.
8. Two claimant fathers filed a case against a lady claiming to be the father ofher only daughter. How could this case be settled identifying the realbiological father?

9. The length of DNA in a eukaryotic cell is N 2.2 m How can such a hugeDNA be packaged in a nucleus of micrometer in diameter.
10. What is splicing? Why is splicing necessary in eukaryotic genes?
11. A tRNA is charged with amino acid methionine.i) At what site in the ribosome will the tRNA bind?ii) Give the anticodon of this tRNA?iii) What is the mRNA codon for methionine?iv) Name the enzyme responsible for this binding?
12. Describe the continuous & discontinuous Synthesis of DNA?
13. Write the full form of SNPs, BAC and YAC.
14. What are the three types of RNA & Mention their role in protein Synthesis?
15. Define bacterial transformation? Who proved it experimentally & how?

Five Mark Questions

1. What is an operon? Describe the major steps involved in an operon?
2. What background information did Watson and crick had available with them for developing a model of DNA? What was their own contribution?
3. What do you mean semi conservative nature of DNA replication? Who proved it & how?
4. Where do transcription & translation takes place in a prokaryotic cell? Describe the three steps involved in translation?
5. DNA polymorphism is the basis of DNA fingerprinting technique. Explain.
6. Name the major types of RNAs and explain their role in the process of protein synthesis in a prokaryote.
7. Who performed the blender experiment? What does this experiment prove? Describe the steps followed in this experiment?

CHAPTER: 7 **EVOLUTION**

One Mark Questions

1. Name any two vestigial organs found in human body?
2. What is the cause of speciation according to Hugo De Vries?
3. What are the end products of the experiment by miller?
4. Name the phenomenon by which rapid speciation takes place?
5. What are divergent evolutions?
6. Name the two scientists who set up a special experiment to prove Oparin's theory of origin of life?
7. What is the hardy Weinberg principle?
8. Name the common ancestor of apes & man?
9. What is the founder effect?
10. Which period is known as "Age of amphibians"?
11. Name the ancestor of Homo habilis.
12. Name the ancestor of bryophytes.
13. What provided energy for a biotic synthesis on primitive earth?
14. Who showed that life comes from pre-existing life?

15. What is meant by Gene pool?
16. Which period is called “Age of Reptiles”?
17. Name the species of human beings which is most closely related to modern man.
18. What are the major divisions of history of earth?

Two Mark Questions

1. Define homologous organs? Give one example of organ homologous tohand of man?
2. What was the composition of the primitive atmosphere that favoured abiotic origin of life on earth?
3. What is the role of variation in evolution?
4. Describe one evidence which decisively proves that birds have evolvedfrom reptiles?
5. Give two examples of bio geographical evidence in favour of evolution.
6. A chimpanzee can hold objects by its hand & an elephant by trunk. Are theseorgans Analogous or homologous?
7. Differentiate between convergent & divergent evolution?
8. Bring out differences between De Vrie’s mutations Darwinian Variations?
9. What is the study of fossils called? Mention any three points how thefossils throw light on past life?
10. If you discovered a fossil bird with scales on the body & teeth in the beak.
11. What would you conclude about its position in the animal kingdom?
12. What is speciation? List any two events that lead to speciation?
13. Would you consider wings of butterfly & a bat as homologous or Analogous& why?
14. Define natural selection? Who else along with Charles Darwin proposed it asthe mechanism of evolution?
15. Why has natural selection not eliminated sickle – cell anaemia?
16. Life originated from the earth’s inorganic atmosphere in the post, butthis no longer happens today. Give two reasons?
17. Can we call human evolution as adaptive radiation?

Three Mark Questions

1. By taking industrial melanism as on example, explain the concept ofnatural selection by evolution?
2. Who were the two scientists that conducted an experiment to synthesiseorganic molecule abiotically? How did they provide the probablecondition of the primitive earth in this experiment?
3. What is Biogenetic law? How comparative embryology doesprovideevidences for evolution?
4. Chemical Insecticides remain useful only for a limited time. Explain withreference to evolution with a suitable example.
5. How do Darwin’s finches illustrate adaptive radiation?
6. Explain the salient features of Hugo de vries theory of mutation.
7. What are the facts that support Darwin’s theory of Natural selection?

8. Explain the increase in the numbers of melanic moths in the urban areas of post industrialisation period in England.
9. Trace the important events or stages of human development?
10. What are the three different ways in which selection may occur?
11. State in what ways Stanley miller simulated the condition of :-i) Primitive atmosphere on earth.ii) Energy source at the time of origin of life .iii) Formation of organic molecule of life.
12. Explain antibiotic resistance observed in bacteria in light of Darwinian selection theory.
13. What is Biogeography? How Darwin's finches provide bio geographical evidencein favour of evolution.
14. Birds have evolved from reptiles. How does paleontology provide evidence in support of the above statement?
15. How did LouisPasteur successfully demolish the popular theory of spontaneousgeneration?
16. Discovery of lobfins is considered very significant by evolutionary biologists. Explain.

Five Mark Questions

1. What does Oparin – Haldane hypothesis about origin of life suggests?
2. What does Hardy Weinberg's principle states? What are the factors which affects Hardy Weinberg's equilibrium?
3. Fitness is the end result of the ability to adapt and get selected by nature. Explain with suitable example.
4. Trace the origin and evolution of man.

CHAPTER: 8 **HUMAN HEALTH AND DISEASES**

One Mark Questions

1. When is a tumour referred to as malignant?
2. Why does an AIDS patient suffer from many infections?
3. What is humoral immunity?
4. Name two curable sexually transmitted diseases?
5. What are primary lymphoid organs?
6. What is neoplasm?
7. Name the type of cells that produce antibodies?
8. What is meant by withdrawal symptoms?
9. Give the scientific name of causative germ of elephantiasis?
10. Name the fish that help in eradication of mosquito larvae.
11. Name three opioids.
12. Name the test performed for the diagnosis of AIDS?
13. Give an example of vaccine produced by recombinant DNA technology?
14. What is incubation period? How long it is for AIDS virus?
15. What is the name given to the infectious stage of plasmodium?
16. Name the cells of immune system that are affected by HIV.

Two Mark Questions

1. Differentiate between two different types of tumours?
2. What do you mean withdrawal Symptoms? What are its characteristics?
3. Differentiate between active & passive immunity?
4. What measures would you take to prevent water borne diseases?
5. Enumerate the two properties of cancer cells that distinguish them from normal cell.
6. List the symptoms of ascariasis. How does a healthy person acquire this infection?
7. What are allergens? How do they cause inflammatory response inside human body?
8. What are autoimmune diseases? Give two examples?
9. Name the primary and secondary lymphoid organs.
10. How does cell – mediated immune system works when our body is infected?
11. Why Second exposure to the same antigen is elicits a quick & intense response?
12. Draw a well – labelled diagram of antibody molecule.
13. What is metastasis?
14. How does B-cell direct humoral immunity?
15. What are the various routes by which transmission of HIV takes place?

Three Mark Questions

1. How does humoral immune system works when our body is infected?
2. What is colostrums? Why is it important to be given to the new born infants?
3. It was diagnosed by a specialist that the immune System of the body of a patient has been suppressed. Describe the infection & the mechanism of its proliferation in the body.
4. Name and explain the two types of immune responses in humans.
5. What are carcinogens? What are the different types of carcinogens? Also mention the different methods of treatment of cancer?
6. What are allergens? How do human beings respond to them?
7. Describe the ill – effects of drug abuse in males & females. Also mention the preventive measures that are to be taken to reduce such effects.
8. What are interferons? How do they help in developing resistance to infection?
9. What is vaccination? What type of immunity is provided by vaccination?
10. i) Differentiate between communicable & non – communicable diseases?
    ii) Name the body part & the host in which following events takes place in life cycleof plasmodium.a) Fertilizationb) Development of Gametophyte :-c) Release of sporozoites d) Asexual Reproduction.
11. What are hallucinogens? Give their two examples. Mention their clinical use, if any.
12. What are the basic principles of vaccination? How do vaccines prevent microbial infections?
13. How does smoking tobacco in human lead to oxygen deficiency in their body?

Five Mark Questions

1. Discuss the role of lymphoid organs in the immune response. Explain the differenttypes of lymphoid organs giving two examples of each type in humans.
2. What are the various public health measures which you would suggest as safeguard against infectious disease?
3. With the help of a well – labelled diagram, Describe the life cycle of malarialparasite.
4. What are the two groups of cells that work for specific immunity? Explain four unique features of specific immunity.
5. List the harmful effect caused by alcohol/drug abuse.

CHAPTER: 9 **STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION**

One Mark Questions

1. Name any two semi – dwarf varieties of wheat introduced into all wheat growingplaces of India?
2. What is Bio fortification?
3. Define inbreeding depression.
4. Give an example where mutation breeding has been successfully carried out forintroducing disease resistance.
5. What is meant by hidden hunger?
6. Name two better yielding varieties of rice developed in India?
7. What is the economic value of spirulina?
8. Name the microbe that is grown for use as protein – rich food?
9. Why is mutation breeding necessary for breeding for disease resistance?
10. How is a mule produced?
11. Give any two commercial products produced from Apis species?
12. What is the major advantage of producing plants by micropropagation?
13. What is a somaclones?
14. Name any two fresh water fishes?

Two Mark Questions

1. What is single cell protein? What is its significance?
2. What is inbreeding? What is the danger of inbreeding?
3. Expand MOET. How is it carried out?
4. What is germplasm? Why is it necessary to have germplasm collection?
5. Explain what is meant by biofortification.
6. Name the two main categories of mutagens. Give one example of each.
7. What is micropropagation?
8. What is inbreeding depression? Why do self – pollinated crops do not show the ill effectsof inbreeding depression?
9. What is interspecific hybridization? Give an example?
10. Explain biomodified foods.
11. What are the advantages of breeding for disease-resistance in plants?
12. Which part of the plant is best suited for making virus free plants & why?
13. What is artificial insemination? What are the advantages of this technique?

14. Why was hybridization carried out between species of Sugarcane in North India &that grown in south India?
15. Name the variety developed & disease to which it is resistant in case of :-
    i) Brassica ii) Cowpea
16. What is meant by the term “breed”. What are the objectives of animal breeding?

Three Mark Questions

1. What measures would you undertake to improve the quality & quantity of milkproduction?
2. What is mutation? List the step how mutation breeding is carried out in agricultural crop.
3. What is “tissue culture”? What are the steps involved in tissue culture?
4. What are the measures that need to be taken for effective poultry farmmanagement?
5. What is single cell protein? What is the significance of such a protein?
6. What are the major advantages of producing plants by micropropagation?
7. The steps in a programme are :-
   Collection of germplasm, crossbreeding the selected parents, selection superior Recombinant progeny & Testing, releasing & marketing new cultivars?
   i) What is this programme related to?
   ii) Name two special qualities as the basis of selection of progeny.
   iii) What was the outcome of the programme?
   iv) What is the popular term given to this outcome? Also name the India Scientist who iscredited with chalking out of this programme.
   v) Among the above – mentioned step which is the most crucial step of this Programme& why?
8. What is apiculture? What are the requirements to consider for bee–keeping?
9. List the disadvantage of production of genetically modified crops.
10. What are the major steps involved in Plant breeding?

Five Mark Questions

1. What is somatic hybridization – Explain the steps involved in the production ofsomatic hybrids?
2. Discuss the role of plant breeding in enhancing food production.
3. Describe the methods of plant breeding and their importance in agriculture.
4. What do you mean by “Out – breeding”? What are the different methods employedfor out breeding.
5. What is meant by the following: somatic hybrid, micropropagation, explants, somaclones.

CHAPTER:10 MICROBES IN HUMAN WELFARE

One Mark Questions

1. What is the medical use of cyclosporin A.?
2. Name the pests that lady bird & dragon flies help to get rid off respectively?
3. Give an example to prove that microbes release gases during metabolism?

4. What are interferons?
5. How is toddy prepared?
6. Name the enzyme which is used as clot buster" to remove blood clot from blood vessels of patients.
7. Name the first antibiotic manufactured & also name its source microorganism.
8. Name any two fungus which are used in production of antibiotics?
9. Expand LAB?
10. What are baculoviruses?
11. Name any two free – living nitrogen fixing bacteria.
12. Name the organism used in the dough for making bread.
13. Name the fungus used as a biocontrol of plant diseases.
14. Give the significance of biofertilisers.
15. Name any two gases produced during secondary treatment of Sewage?
16. How are cheese prepared?

Two Mark Questions

1. What are statins? Where are they produced from? How are they useful to man?
2. What is VAM? How does it act as biofertiliser?
3. Name the source of statin and state its action on the human body?
4. How does small amount of curd added to fest milk convert it into curd?
5. How do methanogens help in producing biogas?
6. Why bottled fruit juices are appear clearer than home-made ones?
7. How does starter added to milk help it to set into curd?
8. A farmer adds Azotobacter to the soil before sowing maize. How does it increasethe yield of maize?
9. Legumes fertilise the soil but cereals do not. Discuss.
10. Mention the dual functions of LAB that are useful to man?
11. What are methanogens? Give an example.
12. Do you think microbes can also be used as source of energy? If yes, how?
13. What is the key difference between primary & secondary sewage treatment.

Three Mark Questions

1. Describe the procedure involved in Sewage treatment?
2. Why is rhizobium categorised as a symbiotic bacterium? How does it act as a bio fertiliser?
3. What are the properties of antibiotic?
4. What is Biogas? How is it produced & Name the microbes invaded in Biogasproduction?
5. What is BOD? What does it mean if a water sample has more BOD?
6. Microbes can be used to decrease the use of chemical fertilizers &pesticides. Explain how can this be accomplished?
7. How do Bio fertilisers enrich the fertility of soil? How do cyanobacteria acts asbio fertiliser?

8. What are bio pesticides? Give the scientific name and use of first commercially used bio pesticide in the world.
9. What are the harmful effects of chemical pesticides?

Five Mark Questions

1. Enumerate the role of microbes in producing some household products.
2. Explain the different steps involved in sewage treatment before it can be released into natural water bodies.
3. Explain the process of sewage water treatment before it can be discharged into natural water bodies. Why is this treatment essential?
4. Write short notes on: Yamuna action plan, and bio control agents

CHAPTER: 11 **BIOTECHNOLOGY: PRINCIPLES AND PROCESSES**

One Mark Questions

1. Name the substance used as a medium in gel electrophoresis.
2. What is Bioconversion?
3. Name the bacterium that yields thermostable DNA polymerase.
4. Which enzymes are known as “molecular Scissors”?
5. Why does DNA moves towards anode in gel electrophoresis.
6. Name the commonly used vector for trans formation in plant cell?
7. Name the technique used for amplification of DNA?
8. Name the enzyme responsible for removal of 5 – phosphate group from nucleicacid?
9. Who isolated Restriction enzymes for the first time?
10. Why do eukaryotic cells do not contain restriction enzymes?

Two Mark Questions

1. Write any two properties of restriction endonuclease enzymes?
2. What are ‘Selectable marker’? What is their use in genetic engineering?
3. How can the desired product formed after genetic engineering be produced on acommercial scale?
4. What is “Insertional Inactivation”?
5. What are the two basic techniques involved in modern Biotechnology?
6. Represent diagrammatically the E. coli. Cloning vector b PBR 322.
7. Differentiate between plasmid DNA and chromosomal DNA?
8. What is the role of enzyme “Ligase” in genetic Engineering?
9. Name the components a bioreactor must possess to achieve the desired product?
10. The following proteins of given molecular weight are Subjected to Getelectrophoresis. Write the order of Sequence in which these proteins are isolatedin a gel?

S.no.	Proteins	Mol.wt
1.	Albumin	23,000
2.	Keratin	48,000
3.	Myosin	1,25,000

4. Haemoglobin 84,000
5. Ribozyme 62,000
6. Insulin 1,14,000

11. How is gene Z used as a marker?
12. What is Bioreactor? What are the advantages of Stirred tank Bioreactor over Shake flask. Show diagrammatically a simple Stirred tank Bioreactor?

Three Mark Questions

1. Mention the important properties which a good vector must possess?
2. Describe any three vectors less method of introducing the rDNA into a competenthost cell?
3. List the steps involved in rDNA technology.
4. Why are molecular scissors so called? Write their use in biotechnology.
5. Write the convention used for naming the restriction enzymes.
6. Why are genes encoding resistance to antibiotics considered useful selectable markers for E.coli cloning vector? Explain with the help of one example.
7. Why Agrobacterium is mediated genetic transformation described as NaturalGenetic engineering in plants?
8. PCR is a useful tool for early diagnosis of an infectious disease. Comment.
9. Write the use of the following in biotechnology.
   (a) Chilled alcohol
   (b) Microinjection
   (c) Bioreactor
   (d) plasmid
10. Mention the important tools required for genetic engineering technology?

Five Mark Questions

1. What are Restriction enzymes? Why do bacteria have these restriction enzymes?Show diagrammatically a restriction enzyme its recognition & the product itproduces?
2. What is cloning vector? Explain the technique of using such a vector in E.coli.
3. Expand PCR? Describe the different Steps involved in this technique?
4. Describe the various steps involved in Recombinant DNA technology with the helpof a well labeled. Diagram?
5. If a desired gene is identified in an organism for some experiments, explain the process of the following;
   (a) Cutting this desired gene at specific location
   (b) Synthesis of multiple copies of this desired gene.

CHAPTER: 12 **BIOTECHNOLOGY AND ITS APPLICATION**

One Mark Questions

1. Name the genetically engineered human Insulin?
2. Write the Scientific name of nematode that attacks the root of tobacco plant?
3. Define a patent?
4. Expand GEAC.

5. Name the first transgenic cow?
6. Which vaccine was being tested on mice?
7. Name the bacterium which is used to produce insect-resistant plants bygenetic engineering.
8. Name any disease against which vaccine is developed laid RecombinantDNA technology.
9. Name the technique which is used to detect HIV in Suspected AIDSpatient?
10. Name any two diseases for which transgenic mice are used as modelorganisms.What is the difference between 'Cry' &'CRY'?
11. Name any one disease for which gene therapy has been proved effective? [

Two Mark Questions

1. What is Golden rice? What is its advantage?
2. What are the three critical research areas in the field of Biotechnology?
3. What are the advantages of molecular diagnostics over conventional methods?
4. What are genetically modified organisms? Name two factors on which theirbehaviour depends?
5. What do you mean by "Bio piracy" Give an example?
6. What are transgenic Bacteria? Illustrate using any one example?
7. Give any two examples of products, how transgenic animals can be used toproduce biological compounds?
8. How is autoradiography used to detect a mutated gene?
9. Why did Bacterial toxin does not kill the bacteria but only the insects?
10. Mention any four applications of Biotechnology in the field ofAgriculture?
11. Why is recombinant Insulin produced by genetic engineering need to beprocessed?

Three Mark Questions

1. Describe with example, why transgenic animals are produced?
2. Describe how nematode – resistant transgenic plants have been obtained?
3. What are Cry proteins? Name an organism that produces it. How has manexploited this protein to his benefit?
4. Write an account on the production of human insulin in transgenic organisms.
5. Compare & contrast the advantages & disadvantage of production of geneticallymodified organisms?
6. How is PCR used to detect gene mutation in case of suspected cancer patient?
7. Bt cotton is resistance to pest, such as lepidopteran, dipterans and coleopterans. Is Bt cotton resistant to other pest as well?
8. What is RNA Silencing? How is this strategy used to create pest –resistant plants?
9. What are the steps involved in synthesis of genetically engineeredinsulin.

Five Mark Questions

1. What is Gene therapy – Illustrate using example of Adenosine deaminasedeficiency?
2. Explain the different uses of biotechnology in medical field.
3. Diagrammatically represent the experimental steps in cloning and expressing a human gene into bacterium like E.coli?

4. What is bio piracy? State the initiative taken by the Indian parliament towards it.
5. How did the process of RNA interference help to control the nematode from infecting root of tobacco plants? Explain.

CHAPTER: 13 **ORAGANISMS AND POPULATIONS**

One Mark Questions

1. Why do leaves contains sunken stomata?
2. Name the type of interaction that is detrimental to both the interaction.
3. What type of interaction is shown by sparrows eating the seeds?
4. Define homeostasis?
5. Give an example of suspension?
6. What is Allen's rule?
7. "Cuckoo bird lays eggs in the nest of crow" which type of interaction isshown in this relation?
8. Give one function of aerenchyma in aquatic plants?
9. What does J-shaped curve indicates?
10. Name the type of interaction in which one species is harmed while otheris neither benefitted nor harmed?
11. Why are calotropis plants not browsed by herbivores?
12. What are the two primary requirements of a parasite from host?
13. What is the ecological principle behind biological control method ofmanaging pest insects?
14. Write the equation for verhulst – pearl logistic growth of population.
15. Name the mechanism employed by ophrys to get its flowers pollinated?
16. List any two factors which determine the nature of soil?

Two Mark Questions

1. Distinguish between ectotherms & Endotherms?
2. "Lichens are considered good examples of obligate mutualisms".Comment?
3. Give any two examples of defence mechanism in plants againstherbivory?
4. What is Brood parasitism? Give an example. What adaptation has evolvedin this phenomenon?
5. An orchid plant is growing on the branch of mango tree. How do youdescribe this interaction between the orchid & the mango tree?
6. State Gauss's competitive exclusion principle?
7. What is migration? Why do animals show this phenomenon?
8. How do desert lizards maintain a fairly constant body temperature?
9. Differentiate between Hibernation & aestivation?
10. Name the bind of interaction present between the following :-
    i) Indian Nightingale & crow
    ii) Nodulated roots & rhizobium
    iii) Plasmodium& man

iv) Orchids & Mongo tree

11. Define carrying capacity?
12. If a marine fish is placed in fresh water aquarium, will the fish be able tosurvive. Why or why not?
13. Out of the two population growth models, which one is more realistic &Why?
14. What role do predators play in an ecosystem?
15. Most living organisms cannot survive at temperature above 450c. How aresome microbes able to live in habitat with temperature exceeding 1000c?
16. Mention any two ways in which organisms tide over unfavourableconditions by suspending their activities.
17. Why are predators "prudent in nature?

Three Mark Questions

1. Describe the specific adaptation of xerophytes with respect to rootsystem, stem & leaves.
2. List the important characteristics of a population & Explain?
3. Describe the specific adaptations of hydrophytes with respect to roots,stem & leaves?
4. Name & explain the bind of interaction in the following.
   i) Algae & fungi in
   ii) Head louse & humans
   iii) Hermit crab & sea anemone
5. Mention the different defense mechanism to reduce the impact ofpredation?
6. Mutualism often involves co-evolution of mutualists. Describe takingthe example of animal plant (wasp-fig) relationship.
7. How do kangaroo rats live in the absence of water in North Americandeserts?
8. How is diapause different from Hibernation?

Five Mark Questions

1. Describe the exponential growth model of a diagram along with a curve?
2. Describe the logistic growth model of population along with a suitable curve. Why is this curve more realistic?
3. Give an example to show that completely unrelated species can also compete for same resources?
4. What is Age pyramid? What are the different types of age pyramid?
5. Differentiate between regulators & conformers? Why do small animals do not show regulations?

CHAPTER: 14 **ECOSYSTEM**

One Mark Questions

1. Name any two man – made ecosystem?
2. Define stratification?
3. Name the ecological pyramid that is always upright?
4. Name the trophic level occupied by secondary consumers & tertiaryconsumers?

5. Define standing crop?
6. Name the ecological pyramid that is inverted in tree ecosystem?
7. What are the products of decomposition?
8. What is 10% law?
9. Mention one similarity between hydrach & Xerach secession?
10. What is the approximate value of net primary productivity of biosphere?
11. Name two climatic factors that regulate decomposition?
12. What is sere?
13. Name the primary consumers in aquatic ecosystem?
14. Name the pioneer species in the primary succession on rock?

Two Mark Questions

1. Why is secondary succession faster than primary succession?
2. Distinguish between upright & inverted pyramids?
3. Explain with an example, why is the length of a food chain in an ecosystemgenerally limited to 3-4 tropic level?
4. What is meant by ecological succession? Describe the different stages inwhich succession occurs?
5. What is meant by ecological pyramid? With the help of one example each,show that pyramid of number can be both upright as well as inverted.
6. Describe the components of an ecosystem?
7. "Energy flow in an ecosystem is always unidirectional justify the statement.
8. Differentiate between Production & decomposition?
9. Explain who pyramid of energy of an ecosystem is always uprights neverinverted?
10. What do you mean by "productivity of an ecosystem? What are the types ofproductivity also mention the factors on which productivity of an ecosystemdepends?
11. What is decomposition – Describe the different processes involved indecomposition?
12. Why is productivity of coral reef maximum?
13. Differentiate between primary productivity & secondary productivity?
14. What ecological principles are derived from the study of food chains?
15. List the factors on which pioneer species depend during secondary succession?
16. The productivity of ecosystem increases from Polar Regions towardstropics. Why?
17. Mention some of the ecological services provided by forests?
18. Differentiate between food chain & food web? [

Three Mark Questions

1. With the help of a diagram, represent the energy flow through differenttrophic level?
2. What is stratification in an ecosystem? Explain with an example.
3. What is an incomplete ecosystem? Explain with the help of a suitable example.
4. Explain xerarch succession highlighting the xeral communities.
5. What is primary productivity? Why does it vary in different types of ecosystems?

6. Explain with the help of two examples, how the pyramid of number and the pyramid of biomass can look inverted.
7. What is pyramid of biomass? Represent the pyramid of biomass in
   i) Grassland ecosystem
   ii) Aquatic ecosystem.

Five Mark Questions

1. Represent schematically & describe carbon cycle in ecosystem?
2. Describe the components of an ecosystem.
3. Write important features of a sedimentary cycle in an ecosystem.
4. Describe the xerarch succession.
5. Draw the pyramids of biomass in a sea and in a forest. Explain giving reasons why the two pyramids are different.
6. Represent schematically & describe the phosphorus cycle in anecosystem?

CHAPTER:15 **BIODIVERSITY AND ITS CONSERVATION**

One Mark Questions

1. Expand i) IUCN -ii) MAB –
2. What are hot spots?
3. Name any two threatened animal species of India?
4. Name two most biodiversity rich zones of India?
5. Expand : i) – WWFii) – IBWL
6. What is cryopreservation?
7. Write the scientific name of the plant that yields reserpine?
8. Name any two conventional methods of ex-situ conservation?
9. What do you mean by “vulnerable species”?
10. Name the national park for Rhinoceros & lion in India respectively?

Two Mark Questions

1. What is IUCN red list? Give any two uses of this list?
2. “Species diversity of plants is much less than that of animals” Why?
3. What is the difference between in-situ & ex-situ conservation?
4. “Amazonian rain forest in south America has the greatest bio-diversity onearth”. Justify the statement.
5. Sometimes introduction of an exotic species upsets native species of theecosystem. Substantiate the statement with the help of an example?
6. What do you mean lay species diversity? Name two measures of speciesdiversity?
7. What are sacred grooves? What is their role in conservation?
8. What do you mean by IPR? What are the drawbacks of IPR?
9. Which type of conservation measures – in situ or ex-situ will help the largernumber of species to survive? Explain.
10. What is Biodiversity? Why has it become important recently?
11. List the important attributes of a stable community?
12. Give reason why is it difficult to estimate global diversity for prokaryotes?

Three Mark Questions

1. What do you mean by biodiversity? What are the different types ofBiodiversity?
2. What do you mean by latitudinal gradient? What could be the possiblereasons for diversity between tropic & temperate region?
3. Mention the major causes for loss of biodiversity?
4. Why is it necessary to conserve biodiversity?
5. What is the relation between species richness & area? What is thesignificance of slope of regression?
6. What are the different approaches for biodiversity conservation in India?
7. Give an account of Biodiversity in India?
8. What is the significance of Biodiversity to Human beings? [

Five Mark Questions

1. Write notes on ex situ conservation of biodiversity.
2. Explain the efforts for the conservation of biodiversity at international level.
3. What are sacred groves? Where are scared grove found in India? Name any four. What are their characteristic features?
4. How is biodiversity important for ecosystem functioning?

CHAPTER: 16 **ENVIRONMENTAL ISSUESS**

One Mark Questions

1. Which types of uv-radiations are lethal to organisms?
2. What is meant by snow blindness?
3. Why should unleaded petrol be used in automobiles with catalyticconverter?
4. Name the most widely used method of removing particulate matter?
5. What is the expected rise in the global temperature by the year 2010?
6. Define polar Vortex?
7. Name the method used to remove pollutant gases from exhaust?
8. Why CNG is considered a better fuel than diesel for automobiles?
9. Name any three gases contributing to green-house effect.
10. Name any two metals found in the catalytic converts?
11. What is meant by ozone hole?

Two Mark Questions

1. What is photochemical smog composed of? How does this affect theplants?
2. What can be the effect of discharging hot water into water body on theorganism in it?
3. How defunct ships do contributes to solid wastes?
4. What are e-wastes? How can they be getting rid off?
5. Mention any four consequences of deforestation?
6. Why are the radioactive wastes stored in small power within the premisesof nuclear power plant before they are finally disposed?
7. Why do certain organisms that disappear after a certain distance in waterbody?
8. What are algal blooms? How do they affect the other organisms in the waterbody?
9. How do CFCS cause damage to ozone layer?

10. What initiatives were taken for reducing vehicular are pollution in Delhi?

Three Mark Questions

1. What is Eutrophication? Explain its consequences on the life of plants &animals living in such water?
2. Describe the different components that compose solid wastes?
3. Discuss the various effects of Deforestation?
4. With the help of a diagram describe the working of an electrostaticprecipitator?
5. What is deforestation? Mention some of its causes & also the measurestaken to prevent deforestation?
6. What is Green house effect? Discuss the various impacts of greenhouseeffect on environment?
7. What is biological magnification? Explain how DDT as a water pollutantundergoes biological magnification?
8. Discuss briefly the catalytic converter? [

Five Mark Questions

1. i) What is meant by ozone shield?
   ii) Name two ozone depleting substances?
   iii) How do ozone depleting substances affect ozone shield?
   iv) Write one damaging effect of ozone – depletion on human & plants respectively?
2. Explain biomagnifications. How does the biomagnifications of DDT affect the population of fish eating birds?
3. List all the wastes that you generate, at home, school or during your trips to other places, could you very easily reduce? Which would be difficult or rather impossible to reduce?
4. What are the various constituents of domestic sewage? Write the effect of sewage discharge on a river.
5. Write short notes on followings:
   (a) Radioactive wastes
   (b) Defunct ships and e-waste
   (c) Municipal solid waste
   (d) Eutrophication
   (e) Scrubber

Value based Questions
Biology
(Class XII)

1. **Tarun was one of the best boys in the class. In spite of his efforts he was not doing well in class XI. His father wanted him to qualify for medical sciences. He got frustrated with his results and resorted to drugs. He started misbehaving with parents and friends in school. His friends started neglecting him. The school authorities counselled Tarun but to no effect. His parents were upset and took him to a rehabilitation centre. After a few months he came back recovered.**
   a) What values did the Principal reflect through his initiative?
   b) What is drug abuse?
   c) Name some commonly abused drugs and their source.
   d) What should be the attitude of his parents after his return?

2. **Joy loves to play football and was selected as captain of the school team for the district level tournament. He also does social work. He attended a blood donation camp to donate blood and came to know that he was HIV positive. He lost interest in games and refused to play or study. He started counting his days. He remained absent from school for a long time. The Biology teacher visited his house and counselled him. Joy was back at school and also played the tournament.**
   a) What sense of responsibility did the Biology teacher exhibit?
   b) A person detected to be HIV positive should be isolated in the society? Do you agree?
   Why/ Why not?
   c) How is AIDS **not** spread?

3. **Ratan lives in a remote village. Suddenly he comes to know that his father has arranged the marriage of his younger sister, who is only 14 years old, to a well- to - do middle aged man living in a nearby village. Ratan objected to his father's act. Ratan was not convinced by his father's idea that a better groom might not be available later. Ratan complained to the village head and got the problem solved.**
   a) Did Ratan act properly by approaching the village head? Why/ Why not?
   b) What biological considerations made Ratan object to his father's decision?
   c) What values and responsibilities did Ratan show?

4. **During a visit to Kedarnath, Mohan came across a young couple staying in the adjacent room in the hotel. He learnt that the couple had been visiting different temples and performing rituals to get a child. Mohan was astonished and explained**

to them about ART which he had recently studied in Biology. The couple were happy and understood their wrong approach and thanked Mohan.

a) Identify the values which Mohan has shown.
b) What is ART? What are the various method included in ART?
c) What are the limitations for which ART is not commonly accepted?

5. **A teenage girl accidently became pregnant. She stopped coming to college and also preferred to remain isolated. She was scared to inform her parents. One of her friends Sweta met her and came to know about the problem. She took her to a doctor and got her aborted. She convinced the parents and kept the matter concealed.**

a) Did Sweta take the correct decision? What values did she show?
b) What is the medical term for abortion? What is the period which is considered safe for abortion?
c) What prevention may be taken to avoid pregnancy?

6. **On world population day Rohit and his friends arranged an awareness campaign programme in their locality. Some elderly people rebuked the children and asked them not to talk on such things in public. The children convinced the elders about the need for the programme and on understanding their point of view, they also joined the campaign.**

a) What values did the elderly people and Rohit show on the occasion?
b) Why is such awareness programme necessary?
c) What role has the government played in controlling population explosion?

7. **Anita was happy when she gave birth to her first child. Her in- laws were dissatisfied at her not giving birth to a male child and blamed Anita. Anita tried to convince her in laws that she had no role in the child's gender. They understood the biological reason but were yet to be satisfied. Anita's husband took up the matter and convinced the parents.**

a) What values did Anita's husband show in the above situation?
b) What governs sex determination in humans? How is it different from birds?
c) Why can't Anita be blamed for not giving birth to a male child?

8. **Ravi was rushed to a nearby hospital after an accident which caused a lot of blood loss.**

The hospital failed to supply O negative blood for transfusion. Rahman who was attending a patient learned about the situation and agreed to donate blood being of the same blood group. Ravi's mother initially refused but was later convinced by her daughter.

a) What values do you find in Ravi's sister and Rahman?
b) Why can't O positive blood be transfused into Ravi's body?

c) What is the genetic basis of blood group inheritance?

9. During an excursion to a botanical garden, the teacher shows an old tree which was on the verge of extinction. As soon as the teacher advanced with the students, some enthusiastic students climbed up the tree and started cutting the branches, collecting its leaves as precious collection. Rajesh instead took photographs of the tree from various angles. The boys mocked at Rajesh while the teacher appreciated him.

a) What values did Rajesh possess?
b) Why should we conserve biodiversity?
c) How can be biodiversity be conserved?

10. During her tour to a renowned forest, Sakshi saw a highway being constructed which passes through the middle of the forest. She was unhappy. On return she contacted the local eco club and approached the concerned department to stop the work.

a) What values did Sakshi reflect here?
b) What would be the effect on Biodiversity if the highway is constructed?

11. Saptarshi entered into a quarrel with some farmers who were spraying DDT in their field.

Many people gathered at the spot to see and enjoy the incident. The angry mob demanded that Saptarshi should not interfere in the farmers' job. Saptarshi tried to explain his point and finally succeeded. The farmers gave up spraying DDT.

a) What did Saptarshi explain to the farmers?
b) What is Biomagnification? Explain with an example.
c) What values did Saptarshi promote?

12. Raj's mother wondered why the mosquitos were not responding to the mosquito repellent which she had been using for several years. Raj asked his mother to change the brand they were using. When it worked, she opined that the quality of the brand she had been using might have degraded over the time. Raj objected and explained to his mother the reality.

a) What values are reflected in the above case?
b) Why did the mosquitoes not respond to the repellent? Explain on the basis of Natural Selection.
c) Cite any two examples of natural selection which we often come across.

13. Hritik's father is a heavy smoker. One day he fainted in his office and the doctor who attended to him found that his blood pressure was high and he had also the deficiency of oxygen in his body.

a) Can you explain why there is oxygen deficiency in the body of a cigarette smoker? What lung disorder can he suffer from?

b) How does smoking of tobacco cause high blood pressure?

c) How can you make a propaganda against smoking?

14. **Mule is an animal used in maintaining terrains to carry luggage, it combines the load carrying nature of donkeys and the fast walking nature of horses. Man has been performing such crosses among plants and animals**.

a) Name and define the type of cross involved in the production of a mule?

b) Give reasons as to why man has been trying such crosses?

c) Mention the values neglected in his act of hybridisation.

15. **Hanshal purchased one high milk yielding exotic breed of cow. Within a few years he earned lot of money by selling calves by using MOET. The mother cow met with a premature death. Raman objected to Hansal earning money by this way.**

a) What values in life did Raman possess?

b) Expand MOET.

c) Briefly describe the process.

16. **On world population day Aman and his friends arranged an awareness campaign Programme in their locality. Some narrow minded people rebuked the children and asked them not to talk on such things in public. The children convinced the elders about the need for the programme and on understanding their point of view, they also joined the campaign.**

a) What values did the elderly people and Aman show on the occasion?

b) Why is such awareness programme necessary?

c) What role has the government played in controlling population explosion?

17. **A Couple young quarreled with the hospital authority on suspicion that their child had been exchanged after birth. The couple based their argument on the fact that their child is O blood group whereas they are A and B blood groups respectively. The doctor smiled and explained.**

a) What values of the doctor is reflected here?

b) How can the child be O blood group as explained by the doctor?

c) Which test method can be considered authentic to identify the biological parents of the child?

d) Name the other blood group(s) which the child could have inherited

18. During a visit to a government office with his father, young Pratap saw dirty spittoons in every corner of the building. Some people were spitting paan and gutka through the window grills. As soon as he objected to their action, Pratap was scolded by some persons and the quarrel between the two parties became a matter of concern. The very next week Pratap was amazed to see the walls cleaned, no spittoons and a notification hung to maintain cleanliness and hygiene inside the office. The officer appreciated Pratap.

a) What values are promoted through the incident?

b) Which diseases are transmitted through droplets and air?

c) How does chewing paan or gutka cause health hazard?

19. Ratan was a known sportsman in his school. While returning home he found some unknown miscreants beating a young fellow. He tried to drive them off but by that time the fellow died of injury. The police arrested Ratan and he was put on trial. The judge being convinced by Ratan's plea, ordered for DNA finger printing reports.

a) Ratan's fingerprints on the dead body were sufficient to convict him but the judge asked for authentic proof? What values can be observed?

b) What is the basis of DNA finger printing?

c) Explain the steps in DNA finger printing.

20. Ravi was rushed to a nearby hospital after an accident which caused a lot of blood loss.

The hospital failed to supply O negative blood for transfusion. Rahman who was attending a patient learned about the situation and agreed to donate blood being of the same blood group. Ravi's mother initially refused but was later convinced by her daughter.

a) What values do you find in Ravi's sister and Rahman?

b) Why can't O positive blood be transfused into Ravi's body?

c) What is the genetic basis of blood group inheritance?