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1 CHAPTER

Reproduction in Organisms

Q.1 What is the major difference you observe in the offsprings produced by asexual reproduction and in the progeny produced by sexual reproduction? [*CBSE 2008*]

Q.2 How is the continuity of species maintained generation after generation ? [*CBSE 2009*]

Q.3 Banana is a parthenocarpic fruit where as oranges show polyembryony. How are they different from each other with respect to seeds ? [*CBSE 2009*]

Q.4 Why is coconut plant referred to as monoecious ? [*CBSE 2009*]

Q.5 In Yeast and *Amoeba*, the parent cells divides to give rise to two new individuals cells. How does the cell division differ in these two organisms? [*CBSE 2010*]

Q.6 Mention a characteristic features and a function of zoospore in some algae. [*CBSE 2010*]

Q.7 Mention the site where syngamy occurs in amphibians and reptiles respectively. [*CBSE 2010*]

Q.8 Name the type of cell division that takes place inthe zygote of an organism exhibiting haplontic life cycle. [*CBSE 2010*]

Q.9 How many chromosome do drones of Honey bee possess? Name the type of cell division involved in the production of sperms by them. [*CBSE 2010*]

Q.10 A moss plant produces a large number of antherozoids but relatively only a few egg cells. Why? [*CBSE 2010*]

Q.11 Why are papaya and date palm plants said to be dioecious, whereas cucurbits and coconut palms monoecious, inspite of all of them bearing unisexual flowers? [*CBSE 2010*]

Q.12 Name the phenomenon and the cell responsible for the development of a new individual without fertilization as seen in Honey bees. [*CBSE 2011*]

Q.13 Name the type of cell division that takes place in the zygote of an organism exhibiting haplontic life cycle. [*CBSE 2011*]

Q.14 Banana produces fruits but is propagated only by vegetative means. Why is it so ? [*CBSE 2012*]

Q.15 Mention the unique flowering phenomenon exhibited by *Srobilanthus kunthiana* (neelakoranji). [*CBSE 2012*]

Q.16 Mention the unique feature with respect to flowering and fruiting in bamboo species. [*CBSE 2012*]

Q.17 Cucurbits and papaya plants bear staminate and pistillate flowers. Mention the categories they are put under separately on the basis of type of flower they bear ? [*CBSE 2012*]

Q.18 Honey bees produce their young ones only by sexual reproduction. Inspite of this, in a colony of bees we find both haploid and diploid individuals. Name the haploid and diploid individuals in the colony and analyse the reasons behind their formation. [*CBSE 2012*]

Q.19 Cucurbits and papaya plants bear staminate and pistillate flowers. Mention the categories they are put under separately on the basis of the type of flowers they bear. [*CBSE 2012*]

Q.20 In whiptail lizards only females are born generation after generation. There are no males. How is this possible ? [*CBSE 2012*]

Q.21 Name an alga that reproduce asexually through zoospore. Why are these reproductive units so called? [*CBSE 2013*]

Q.22 Name the units of vegetative propagation in water hyacinth. Explain giving reasons why it has become the most invasive aquatic weed ? [*CBSE 2013*]

Q.23 Name the phenomenon and one bird, where the female gamete directly develops into a new organism. [*CBSE 2013*]

Q.24 Give the name of the common phenomenon with reference to reproduction in rotifers, honeybees and Turkeys. [*CBSE 2013*]

Q.25 Give one example of an animal which exhibits oestrus cycle. [*CBSE 2014*]

Q.26 Write the two pre-fertilisation events from the list given below: Syngamy, Gametogenesis, Embryogenesis, Pollination [*CBSE 2014*]

Q.27 In which two of the following organisms is the fertilisation external? Bony fishes, Ferns, Frogs, Birds. [*CBSE 2014*]

Q.28 Differentiate between oviparous and viviparous animals. [*CBSE 2014*]

Q.29 Coconut palm is monoecious,while date palm is dioecious. Why are they so called? [*CBSE 2014*]

Q.30 Name any two organisms and the phenomenon involved where the female gamete undergoes development to form new organisms without fertilisation. [*CBSE 2014*]

Q.31 Why do algae and fungi shift to sexual mode of reproduction just before the onset of adverse conditions? [*CBSE 2014*]

Q.32 Name two animals that exhibit oestrus cycle. [*CBSE 2016*]

Q.33 Angiosperms bearing unisexual flowers are said to be either monoecous or dioecious. Exlain with the help of one example each. [*CBSE 2016*]

Q.34 Out of many papaya plants growing in your garden, only a few bear fruits. Give reason. [*CBSE(Al) 2016*]

Q.35 State the fate of a pair of autosomes during gamete formation. [*CBSE 2017*]

Q.36 Differentiate between an annual and a biennial plant. Provide one example of each. [*CBSE 2017*]

Q.37 At what state does the meiosis occur in an organism exhibiting haploidic life cycle and mention the fate of the products thus produced. [*CBSE 2019*]

Q.38 Mosses and frogs both need water as a medium for fertilisation. Where does syngamy occur and how is it ensured in both these organisms ? [*CBSE 2019*]

Q.39 Pollen banks are playing a very important promoting plant breeding programme the world over. How are pollens preserved in the pollen banks ? Explain. How are such banks benefitting our farmer ? Wrire any two ways. [*CBSE 2019*]

Q.40 It is said apomoxis is a type of asexual reproduction. Justify. [*CBSE 2019*]

2 CHAPTER Sexual Reproduction in Flowering Plants

Q.1 Name the type of cross-pollination in silk cotton tree and *Vallisneria*, respectively. [*CBSE 2006*]

Q.2 Difference between parthenogenesis and parthenocarpy in plants. [*CBSE 2006,2018*]

Or

Differentiate between Parthenocarpy and Parthenogenesis. Give one example of each. [*CBSE 2018*]

Q.3 Draw well labelled diagram of sectional view of mature pollen grain in angiosperm. [*CBSE 2008*]

Q.4 The flower of brinjal is referred to as chasmogamous while the beans is cleistogamous. How are they different from each other ? [*CBSE 2008*]

Q.5 Banana is a true fruit and also a parthenocarpic fruit. Justify. [*CBSE 2008,2012*]

Q.6 Name the type of pollination as a result of which genetically different type of pollen grains of same species land on the stigma. [*CBSE 2009*]

Q.7 A meiocyte of rice has 24 chromosome. How many chromosome are present in its endosperm ?[*CBSE 2009*]

Q.8 Where does triple fusion take place in a flowering plant ? Why is it so called ? Mention its significance. [*CBSE 2010*]

Q.9 How do flowers reward their insect pollinator ? [*CBSE 2010*]

Q.10 Pea flowers produce assured seed set. Give a reason. [*CBSE 2010*]

Q.11 How do the pollen grains of *Vallisneria* protect themselves? [*CBSE 2012*]

Q.12 Name the product of fertilisation that form kernel of coconut. How does that kernel differ from coconut water. [*CBSE 2012*]

Q.13 Why is fertilisation in an angiosperm referred to as double fertilisation ? Mention the ploidy of the cells involved. [*CBSE 2012*]

Q.14 Where is sporopollenin in plants present ? State its significance with reference to its chemical nature. [*CBSE 2012*]

Q.15 Differenciate between perisperm and endosperm giving one example each. [*CBSE 2012*]

Q.16 Name all haploid cells present in an unfertilised mature embryo sac of a flowering plant. Write the total number of cells in it. [*CBSE 2013*]

Q.17 Name the weed that came to India as a contaminant with imported wheat. [*CBSE (AI) 2014*]

Q.18 With a neat diagram and explain the 7-celled, 8-nucleate nature of the female gametophyte. [*CBSE 2017*]

Q.19 In a flowering plant a microspore mother cell produce four male gametophyts while a megaspore mother cell form only one female gametophyte. Explain. [*CBSE 2017*]

Q.20 "Pollen grains in wheat are shed at 3-celled stage while in peas they are shed at 2- celled stage." Expalin. Where are germ pores present in a pollen grain ? [*CBSE 2017*]

Q.21 Mention the ploidy of the different types of cells present in the female gametophyte of an angiosperm. [*CBSE 2017*]

Q.22 Draw the diagram of microsporangium of an angiosperm and label any four parts. State the function of its innermost wall layer. [*CBSE 2018*]

Q.23 ***a)*** Describe any two devices in a flowering plant which prevent both autogamy and geitonogamy.

b) Explain the events upto double fertilisation after the pollen tube enters one of the synergids in an ovule of an angiosperm. [*CBSE 2018*]

Q.24 Explain the events upto double fertilisation after the pollen tube enters one of the synergids in an ovule of an angiosperm. [*CBSE 2018*]

Or

Describe the post pollination events leading to double fertilization in angiosperms, starting with a two - celled pollen grain. [*CBSE 2019*]

Q.25 Draw a T.S. of a young anther of an angiosperm. Label the different layers of the wall and write their functions. [*CBSE 2019*]

Q.26 List any two characteristic feature of wheat flowers that make it a good example of wind pollination. [*CBSE 2019*]

Q.27 Explain the role of stigma in pollen-pistil interactions. [*CBSE 2019*]

Q.28 What is cleistogamy ? Write one advantage and one disadvantage of it, to the plant. [*CBSE 2019*]

Q.29 Draw a vertical section of a maize grain and label (*i*) pericarp, (*ii*) scutellum, (*iii*) coleoptile and (*iv*) radicle [*CBSE 2019*]

Q.30 Where are the following structures present in a male gametophyte of an anggiodperm ? Mention the function of each one of them. [*CBSE 2019*]

Q.31 State what is apomixis. Comment on its significance. How can it be commercially used ? [*CBSE 2019*]

Q.32 When are the non-flowering plants said to be homothallic and monoecious; and heterothallic and dioecious ? Give an example of each. [*CBSE 2020*]

Q.33 Explain double fertilization in an angiosperm. [*CBSE 2020*]

Q.34 Where does microsporogenesis occur in an angiosperm? Describe the process of microsporogenesis. [*CBSE 2020*]

Q.35 Draw a labelled diagam of the two-celled male gametophyte of an angiosperm. How is the three-celled male gametophyte different from it ? [*CBSE 2020*]

3 CHAPTER Human Reproduction

Q.1 A sperm has just fertilised a human egg in the fallopian tube. Trace the events that the fertilised egg will undergo up to the implantation of blastocyst in the uterus. [*CBSE 2005*]

Q.2 Why does failure of testes to descend into the scrotum produce sterility ? [*CBSE 2006*]

Q.3 What is corpus luteum ? [*CBSE 2006*]

Q.4 Define spermiogenesis. Where does it occur ? [*CBSE 2008*]

Q.5 Where are the Leydig's cells present ? What is their role in reproduction ? [*CBSE 2009*]

Q.6 Mention the target cells of LH in human males and females. Explain the effect and the changes which the hormone induces in each case. [*CBSE 2009*]

Q.7 Study the following flow chart. Name the hormones involved at each stage. Explain their functions. [*CBSE 2009*]

Q.8 Mention the target cells of LH in human males and females. Explain the effect and the changes which the hormone induces in each case. [*CBSE 2009*]

Q.9 When and how does placenta develop in human female? Explain. [*CBSE 2009*]

Or

Mention the events that lead to the development of placenta during pregnancy in human females. [*CBSE 2019*]

Q.10 Draw a labelled sectional view of seminiferous tubule of a human male ? [*CBSE 2010*]

Q.11 Difference between menarche and menopause. [*CBSE 2010*]

Q.12 Mention the fate of corpus luteum and its effect on the uterus in absence of fertilisation of the ovum in a human female. [*CBSE 2010*]

Q.13 Draw a labelled diagram of reproductive system in a human female. [*CBSE 2011*]

Q.14 List the changes that the primary oocyte undergoes in the tertiary follicular stage in human ovary. [*CBSE 2011*]

Q.15 Name the embryonic stage that gets implanted in the uterine wall of a human females. [*CBSE 2011*]

Q.16 Mention the function of trophoblast in human embryo. [*CBSE 2011*]

Q.17 What stimulate pituitary to release the hormones responsible for parturition ? Name the hormone. [*CBSE 2011*]

Q.18 When do the oogenesis and spermatogenesis initiate in human female and male respectively ? [*CBSE 2012*]

Q.19 Where is acrosome present in humans ? Write its function. [*CBSE 2012*]

Q.20 Name the function of the followings:

i) Corpus luteum ***ii)*** Endometrium

iii) Acrosome ***iv)*** Sperm tail

v) Fimbriae [*CBSE 2012*]

Q.21 How is the entry of only one sperm and not many ensured into an ovum during fertilization in human? [*CBSE 2012*]

Q.22 Explain the function of umbilical cord. [*CBSE 2012*]

Q.23 Draw a labelled diagram of a human blastocyst. How it get implanted in uterus ? [*CBSE 2013*]

Q.24 When and where do chorionic villi appear in humans? State their function. [*CBSE 2013*]

Q.25 Draw a well labelled diagram of mammalian sperm.

Or [*CBSE 2014,2015*]

Draw a diagram of a mature human sperm. Label any three parts and write their functions. [*CBSE 2018*]

Q.26 Draw a labelled diagram of sperm. [*CBSE 2015*]

Q.27 Write the location and function of the Sertolic cells in humans [*CBSE 2016*]

Q.28 Explain the events that follow up to fertilisation when the sperms come in contact with the ovum in the fallopian tube of a human female. [*CBSE 2016*]

Q.29 After implantation interdigitation of maternal and foetal tissue takes place. Identify the tissue involved and justify their role. [*CBSE 2016*]

Q.30 What do you mean by menstrual cycle ? Briefly explain its four phases. [*CBSE 2018*]

Or

Explain mentrual cycle in human females. [*CBSE 2018*]

Q.31 Medically it is advised to all young mothers that breastfeedings is the best for their newborn babies. Do you agree? Give reasons in support of your answer. [*CBSE 2018*]

Q.32 Draw a diagram of a mature human sperm. Label any three parts and write their functions. [*CBSE 2018*]

Q.33 Explain the role of placenta during pregnancy including its action as an endocrine organ. [*CBSE 2019*]

Q.34 State the fate of trophoblast of a human blastocyst at the time of implantation and that of the inner cell mass immediately after implantation. [*CBSE 2019*]

Q.35 Draw a labelled sectional view of seminiferous tubule of a human male. [*CBSE 2019*]

Q.36 Where do the signals for parturition originate from in humans ? [*CBSE 2019*]

Q.37 Construct a flow chart exhibiting sequential events of oogenesis. [*CBSE 2019*]

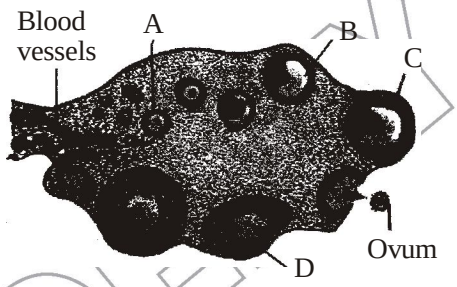
Q.38 After spermiogenesis, the heads get embedded in which of the following cells ?

(A) Leydig cells (B) Sertoli cells

(C) Germinal epithelium (D) Seminal vesicle

[*CBSE 2020*]

Q.39 Study the transverse section of human ovary given velow and answer the questions that follow :



a) Name the hormone that helps in the growth $A \rightarrow B \rightarrow C$.

b) Name the hormone secreted by A and B.

c) State the role of the hormone produced by D.

[*CBSE 2020*]

Q.40 Where does fertilization occur in the oviduct of a human female ? Describe the process of fertilization.

[*CBSE 2020*]

4 CHAPTER Reproductive Health

Q.1 Explain ZIFT. How is IUT different from it. [*CBSE 2006*]

Q.2 Why is Cu'T' considered as a good contraceptive device to space children. [*CBSE 2008, 2009, 2011*]

Q.3 Why do some women use Saheli pills ?

Or

List the advantages of using Saheli as a contraceptive. [*CBSE 2008, 2009, 2010*] [*CBSE 2019*]

Q.4 Mention any two events that are inhibited by the intake of oral contraceptive pills to prevent pregnancy in humans. [*CBSE 2009*]

Q.5 How do copper and Hormone releasing IUDS act as contraceptive ? Explain. [*CBSE 2010*]

Q.6 At the time of independence, the population of India was 350 million, which exploded to over 1 billion by May 2000. List any two reasons for this rise in population and any two steps taken by the government to check this population explosion. [*CBSE 2011*]

Q.7 Suggest and explain any three Assisted Reproductive Technologies (ART) to an infertile couple.[*CBSE 2013*]

Q.8 If implementation of better techniques and new strategies are required to provide more efficient care and assistance to people, then why is there a statutory ban on amniocentesid ? Write the use of this technique and give reason to justify the ban. [*CBSE 2014*]

Q.9 A woman has certain queries as listed below, before starting with contraceptive pills. Answer them.

a) What do contraceptive pills contain and how do they act as contraceptives ?

b) What schedule should be followed for taking these pills? [*CBSE 2014*]

Q.10 Expand the following and explain any one of them.

(*a*) IVF (*b*) ZIFT (*c*) IUI (*d*) MTP [*CBSE 2014*]

Q.11 Name and explain the surgical method advised to human males and females as a means of birth control. Mention its one advantage and one disadvantage. [*CBSE 2014*]

Q.12 What is amniocentesis ? Explain the various steps involved in this technique. Write it's significance also. [*CBSE 2015*]

Q.13 Indiscriminate diagnostic practices, using X-rays, etc... should be avoided. Give one reason. [*CBSE 2015*]

Q.14 An infertile couple is advised to adopt test-tube baby programme. Describe two principle procedures adopted for such technologies. [*CBSE 2015*]

Q.15 In case of an infertile couple, the male partner can inseminate normally but the mobility of sperms is below 40 percent. Which kind of ART is suitable in this situation to form an embryo in the laboratory conditions, without involving a donor ? [*CBSE 2015,2017,2018*]

Q.16 The alarming population growth is leading to scarcity of basic requirements. Suggest with reasons, any two population control measures other than contraception to address the situation. [*CBSE 2015,2017,2018*]

Q.17 Government of India has raised the marriageable age of female to 18 years and of males to 21 years. Suggest any two more measures adopted by Government for the purpose. [*CBSE 2016*]

Q.18 Name two hormones that are constituents of contraceptive pills. Why do they have high and effective contraceptive value ? Name a commonly prescribed non-steroidal oral pill. [*CBSE 2016*]

Q.19 A large number of married couples the world over are childless. It is shocking to know that in India the female partner is often blamed for the couple being childless.

a) Why in your opinion the female partner is often blamed for such situations in India ?

b) State any two reasons responsible for the cause of infertility.

c) Suggest a technique that can help the couple to have a child where the problem is with the male partner. [*CBSE 2016*]

Q.20 A village health worker was taking a session with women. She tells the women that one has to by very careful while using oral pills as method of birth control. Wrong usage can actually promote conception.

a) Analyse the statement and compare the merits and demerits of using oral pills and surgical methods of birth control.

b) Village women were confused as to how a thin metallic copper loop can provide protection against pregnancy. Justify the use, explaining the mode of action of IUDs. [*CBSE 2016*]

Q.21 What are Intra Uterine devices? Name three IUDS. [*CBSE 2019*]

Q.22 What is the working of IUD's ? [*CBSE 2019*]

Q.23 Give one reason to justify statutory ban on aminocentesis. [*CBSE 2019*]

Q.24 ***a)*** Name and explain the mode of action of any two types or IUDs.

b) List the advantages of using '*Saheli*' as a contraceptive. [*CBSE 2019*]

5 CHAPTER

Principles of Inheritance and Variation

Q.1 State the principle of independent assortment ? How would the following affect the phenomenon of independent assortment ? [*CBSE 2002*]

Q.2 A homozygous tall pea plant with green seeds is crossed with a dwarf pea plant with yellow seeds.
i) What would be the phenotype and genotype of F_1?
ii) Work out the phenotypic ratio of F_2 generation with the help of Punnett square. [*CBSE 2008*]

Q.3 When a tall pea plant was self pollinated, 1/4 of progeny were dwarf. Give the genotype of parent and dwarf progenies. [*CBSE 2008*]

Q.4 Work out a cross between two plants *Antirrhinum majus*, one with red flower and other with white flowers. Show F_1 and F_2 generation with genotypes. What shall we call them and write their ratios. [*CBSE 2008*]

Q.5 When tall pea plants were selfed some of the offspring were dwarf. Explain with the help of Punnett square. [*CBSE 2009, 2010*]

Q.6 Inheritance pattern of flower colour in garden pea plant and Snapdragon differs. Why is this difference observed? Explain showing the crosses up to F_2 generation. [*CBSE 2009*]

Q.7 Write the percentage of F_2 Homozygous and Heterozygous population in a typical monohybrid cross. [*CBSE 2010*]

Q.8 Write the symptoms of Haemophilia and Sickle cell anaemia in Humans. Explain how the inheritance of two diseases differs from each other. [*CBSE 2010*]

Q.9 Mention the type of allele that expresses itself only in Homozygous state in an organism. [*CBSE 2011*]

Q.10 Why in a test cross, did Mendel cross a tall pea plant with a dwarf pea plant only. [*CBSE 2011*]

Q.11 A pea plant with purple flowers was crossed with white flowers producing 50 plants. With only purple flowers on selfing these plants produced 482 plants with purple flowers and 162 with white flowers. What genetic mechanism account for these result ? Explain. [*CBSE 2011*]

Q.12 In a typical monohybrid cross the F_2 population ratio is written as 3 : 1 for phenotype but expressed as 1:2:1 for genotype. Explain with the help of an example. [*CBSE 2013*]

Q.13 Differentiate between male heterogamety and female heterogamety with the help of an example of each. [*CBSE 2013*]

Q.14 Mention any two contrasting traits with respect to seeds in pea plant that were studied by Mendel. [*CBSE(Al) 2014*]

Q.15 A geneticist interested in studying variations and patterns of inheritance in living beings prefers to choose organisms for experiments with shorter life cycle. Provide a reason. [*CBSE 2015*]

Q.16 A male honeybee has 16 chromosomes whereas its female has 32 chromosomes. Give one reason. [*CBSE (Al) 2016*]

Q.17 Give an example of a human disorder that is caused due to a sigle mutation. [*CBSE 2016*]

Q.18 Give an example of a chromosomal disorder caused due to non-disjunction of autosomes. [*CBSE 2016*]

Q.19 Name the type of cross that would help to find the genotype of a pea plant bearing violet flowers. [*CBSE (Al)2017*]

Q.20 Mention the combination(s) of sex chromosomes in a male and a female bird. [*CBSE 2017*]

Q.21 A cross was carried out between two pea plants showing the contrasting traits of height of the plant. The result of the cross showed 50% of parental characters. Name the type of cross. [*CBSE 2018*]

Q.22 ***a)*** Write the scientific name of the organism Thomas Hunt Morgan and his colleagues worked with for their experiments. Explain the correlation between linkage and recombination with respect to genes as studied by them.
b) How did Sturtevant explain gene mapping while working with Morgan ? [*CBSE 2018*]

Q.23 What is chromosome mapping ? [*CBSE 2018*]

Q.24 What type of sex chromosome complement is present in following organisms ? [*CBSE 2018*]
i) Human male ***ii)*** Peacock
iii) Male grasshopper ***iv)*** *Drosophila* (Male)

Q.25 The male fruit fly and female fowl are heterogametic while the female fruit fly and male fowl are homogametic. Why are they called so ? [*CBSE 2008*]

Q.26 How is the sex determined in human being ? [*CBSE 2018*]

Q.27 Explain the mechanism of 'sex determination' in birds. How does it differ from that of human beings? [*CBSE 2018*]

Q.28 Differentiate between Turner's syndrome and Down's syndrome. [*CBSE 2019*]

Q.29 Given below are the F_2-phenotypic ratios of two independently carried monohybrid crosses.
i) 1 : 2 : 1 ***ii)*** 3 : 1 [*CBSE 2019*]
Mention what does each ratio suggest.

Q.30 What is heterogamety ? Explain the mechanism of sex determination in *Drosophila*. [*CBSE 2019*]

Q.31 How would you find out wether a given tall garden pea plant is homozygous or heterozgous ? Substantiate your answer with the help of Punnett. [*CBSE 2019*]

Q.32 Name a human genetic disorder due to the following :
i) An additional X-chromosome in a male.
ii) Deletion of one X-chromosome in a female. [*CBSE 2019*]

Q.33 State what does aneuploidy lead to. [*CBSE 2019*]

Q.34 Explain the cause responsible plants said to be homothallic and chromosomes as 'XXY' instead of 'XY'. [*CBSE 2020*]

Q.35 Differentiate between the pattern of inheritance in humans of the blood diseases, haemophilia and thalassemia. [*CBSE 2020*]

Q.36 ***a)*** Compare the mechanism of sex determination in humans with that of honey bees, with respect of chromosome number.
b) How is the gamete formation comparable in the above two cases ? [*CBSE 2020*]

Q.37 Differentiate between Dominance, Incomplete dominance and Co-dominance with the help of a suitable example of each. [*CBSE 2020*]

6 CHAPTER Molecular Basis of Inheritance

Q.1 What does the lac operon consist of ? How is the operator switch on or off in the expression of gene in this operon? Explain. [*CBSE 2003*]

Q.2 ***i)*** DNA polymorphism is the basis of DNA finger printing technology. Explain.
ii) Mention the cause of DNA polymorphism. [*CBSE 2007*]

Q.3 Why is t-RNA called an adapter molecule ? [*CBSE 2008*]

Q.4 Explain the process of charging of t-RNA. Why is it essential in translation ? [*CBSE 2008*]

Q.5 Who proposed that DNA replication is semi-conservative? How was it experimentally proved by Meselson and Stahl? [*CBSE 2009*]

Q.6 What are satellite DNA in a genome ? Explain their role in DNA fingerprinting. [*CBSE 2009*]

Q.7 Mention the role of ribosomes in peptide bond formation. [*CBSE 2010*]

Q.8 Unambiguous, universal and degenerate are some of the terms used for the genetic code. Explain the features of each one of them. [*CBSE 2011*]

Q.9 How are the structural genes inactivated in lac operon in *E.coli* ? Explain. [*CBSE 2012*]

Q.10 How are the structual genes activated in lac operon in *E.coli* ? [*CBSE 2012*]

Q.11 How did Griffith and Avery show experimentally that DNA is the genetic materials ? [*CBSE 2012*]
Or
Describe the Griffith experiment to demonstrate that DNA is the genetic material. [*CBSE 2013*]

Q.12 With the help of a Punnett square, find the percentage of homozygousn talls in a F_2 population involving a true breeding tall and a true breeding dwarf pea plant. [*CBSE 2013*]

Q.13 ***a)*** Why is human ABO blood group gene considered a good example of multiple alleles ?
b) Work out a cross up to F_1 generation only, between a mother with blood group A (Homozygous) and the father with blood group B (Homozygous). Explain the pattern of inheritance exhibited. [*CBSE 2013*]

Q.14 What is central dogma ? [*CBSE 2013,2018*]

Q.15 In snapdragon, a cross between true-breeding red flowered (RR) plants and true-breeding white flowered (rr) plants showed a progeny of plants with all pink flowers.
a) The appearance of pink flowers is not known as blending. Why ?
b) What is this phenomenon known as ?[*CBSE 2014*]

Q.16 In a particular plant species, majority of the plants bear purple flowers. Very few plants bear white flowers. No intermediate colours are observed. If you are given a plant bearing purple flowers, how would you ascertain that it is a pure breed for that trait ? Explain. [*CBSE 2014*]

Q.17 Explain pleiotropy with the help of an example. [*CBSE 2014*]

Q.18 Linkage and crossing-over of genes are alternatives of each other. Justify with the help of an example. [*CBSE 2014*]

Q.19 How does the gene 'I' control ABO blood groups in humans ? Write the effect the gene has on the structure of red blood cells. [*CBSE 2014*]

Q.20 Why is pedigree analysis done in the study of human genetics ? State the conclusions that can be drawn from it. [*CBSE 2014*]

Q.21 Write the scientific name of the fruitfly. Why did Morgan prefer to work with fruitfkies for his experiments ? State any three reasons. [*CBSE 2014,2015*]

Q.22 Explain the significance of satellite DNA in DNA finger printing technique. [*CBSE 2015*]

Q.23 During a monohybrid cross involving a tall pea plant with a dwarf pea plant, the offspring populations were tall and dwarf in equal ratio. Work out a cross to show how it is possible. [*CBSE 2015*]

Q.24 Given an example of a gene responsible for multiple phenotypic expressions. What are such genes called ? State the cause that is responsible for such an effect. [*CBSE(F) 2015*]

Q.25 Differentiate between male and female heterogamety. [*CBSE 2015*]

Q.26 Explain mechanism of sex determination in birds. [*CBSE 2015*]

Q.27 The F_2 progeny of a monohybrid cross showed phenotypic and genotypic ratio 1 : 2 : 1, unlike that of Mendel's monohybrid F_2 ratio. With the help of a suitable example, work out a cross and explain how it is possible. [*CBSE 2015*]

Q.28 How does a test cross help to determine the genotype of an individual ? [*CBSE 2016*]

Q.29 What is a test cross ? How can it decipher the heterozygosity of a plant ? [*CBSE(Al) 2016*]

Q.30 Give an example of an autosomal recessive trait in humans. Explain its pattern of inheritance with the help of a cross. [*CBSE 2016*]

Q.31 A couple with normal vision bear a colour blind. Work out a cross to show how it is possible and mention the sex of the affected child. [*CBSE 2016*]

Q.32 Explain co-dominance with the help of one example. [*CBSE 2017*]

Q.33 Both haemophilia and thalassemia are blood related disorders in humans. Write their causes and the difference between the two. Name the category of genetic disorder they both come under. [*CBSE (Al)2017*]

Q.34 One of the twins born to parents having normal colour vision was Down's blind whereas the other twin had normal vision. Work out the cross. Give two reasons how it is possible. [*CBSE 2017*]

Q.35 How did Hershey and Chase differentiate between DNA and protein in their experiment while proving DNA is the genetic material ? [*CBSE 2018*]

Q.36 Explain how the biochemical characterisation (nature) of 'Transoforming Principle' was determined. which was not defined from Griffith's experiments. [*CBSE 2018*]

Q.37 Retrovirus don't follow central dogma. Comment. [*CBSE 2018*]

Q.38 When snapdragon plant bearing pink colour flower was selfed, it was found that ; 69 plants were having red coloured flowers. What would be the number of plants bearing pink flower and white flower ? Show with the help of Punnett square. Identify the principle of inheritance involved in this experiment. [*CBSE 2018*]

Q.39 Explain the mechanism of 'sex determination' in birds. How does it differ from that of human beings ? [*CBSE 2018*]

Q.40 Who advanced the concept of central dogma ? [*CBSE 2018*]

Q.41 Depict the modified central dogma. (Reverse transcription). [*CBSE 2018*]

Q.42 Although a prokaryotic cell has no defined nucleus, yet DNA is not scattered throughout the cell. Explain. [*CBSE 2018*]

Q.43 Write a brief note on DNA-finger printing. [*CBSE 2018*]

Q.44 Which methodology is used while sequencing the total DNA from a cell ? Explain it in detail. [*CBSE 2018*]

Q.45 Explain the detailed mechanism of post-transcriptional modification with the help of diagrams.

Or

Explain the process of making hnRNA into a fully functional mRNA in eukaryotes. Where does this process occur in the cell ? [*CBSE 2019*]

Q.46 Write any six salient features of the human genome as drawn from the human genome project. [*CBSE 2019*]

Q.47 ***i)*** Why did Hershey and chase use radioactive ^{32}P and S^{35} in their experiments ? Explain.

ii) Following the experiments conducted by them, write what conclusion did they arrive at and how ? [*CBSE 2019*]

Q.48 Differentiate between a DNA and an RNA nucleotide [*CBSE 2019*]

Q.49 How is hnRNA processed to form *m*RNA ? [*CBSE 2019*]

Q.50 Write any six salient features of the human genome as drawn from the human genome project. [*CBSE 2019*]

Q.51 List any two ways such individuals are different from the normal being. [*CBSE 2020*]

Q.52 ***a)*** Name the type of DNA that forms the basis of DNA fingerprinting and mention two features of this DNA.

b) Write the steps carried out in the process of DNA fingerprinting technique, and mention its application. [*CBSE 2020*]

Or

Explain the role of different genes in a *lac* operon, when in a 'Switched On' state. [*CBSE 2020*]

7 CHAPTER

Evolution

Q.1 How does Darwin's theory of Nature selects explain the appearance of new form of life on earth ? [*CBSE 2005*]

Q.2 What is divergent evolution ? Explain taking an example of plants. [*CBSE 2009*]

Q.3 Mention the type of evolution that has brought the similarity seen in potato tuber and sweet potato. [*CBSE 2009,2018*]

Q.4 Are the thorns of *Bougainvillea* and tendrils of Cucurbits homologous or analogous ? What type of evolution has brought such a similarity in them ? [*CBSE 2009,2018*]

Q.5 Name the Scientist who disproved Spontaneous generation Theory. [*CBSE 2010*]

Q.6 When does a species become founders to cause founder effect ? [*CBSE 2010*]

Q.7 In England, during the post-industralised period, the melanic moths increased in urban area but remained low in rural area. Explain. [*CBSE 2010*]

Q.8 State the Significance of study of fossils in evolution? [*CBSE 2012*]

Q.9 ***a)*** How does Hardy - Weinberg equation explain genetic equilibrium ?

b) Describe how does this equilibrium get disturbed which may lead to founder effect.[*CBSE 2012*]

Q.10 What did Louis Pasteur's experiment on Killed Yeast' demonstrate? Name the theory that got disproved on the basis of his experiment. [*CBSE 2013*]

Q.11 List the two main propositions of Oparin and Haldane. [*CBSE 2013*]

Q.12 With the help of any two suitable example explain the effect of anthropogenic action on organic evolution. [*CBSE 2013*]

Q.13 How does the process of natural selection affect Hardy-Weinberg equilibrium ? Explain. List the other four factors that disturb the equilibrium. [*CBSE 2013*]

Q.14 ***a)*** Write and explain the conclusion Darwin arrived at after observing the variations seen in the beaks of finches during his sea voyage.

b) Marsupials and Australian placental mammals exhibit convergent evolution. Expalin how. [*CBSE 2013*]

Q.15 ***a)*** Explain Darwinian theory of evolution with the help of one suitable example. State the two key concepts of the theory.

b) Mention any three characteristics of Neanderthal man that lived in near east and central Asia. [*CBSE 2014*]

Q.16 Why are analogous structures a result of convergent evolution ? [*CBSE 2014*]

Q.17 Explain Palaentological evidences in support of organic evolution ? [*CBSE 2015*]

Q.18 State a reason for the incrased population of dark coloured moths coinciding with the loss of lichens (on three barks) during industrialisation period in England. [*CBSE 2015*]

Q.19 Explain convergent evolution with the help of two examples. [*CBSE 2015*]

Q.20 Explain the interpretation of Charles Darwin when he observed a variety of small black birds on Galapagos Islands. [*CBSE 2015*]

Q.21 Describe the experiment that helped Louis Pasteur to dismiss the theory of spontaneous generation of life. [*CBSE 2016*]

Q.22 Protein synthesis machinery revolves around RNA but in the course of evolution it was replaced by DNA. Justify. [*CBSE 2016*]

Q.23 Differentiate between divergent and convergent evolution. Give one examples of each. [*CBSE 2016*]

Q.24 How do homologous organs represent divergent evolution? Explain with the help of a suitable. [*CBSE 2016*]

Q.25 ***a)*** What are fossils ? How are they an evidence fo evolution?

b) "Anthropogenic action can lead to evolution." Explain with the help of an example. [*CBSE 2016*]

Q.26 ***a)*** How did Darwin expalin adaptive radiation ? Give another example exhibiting adaptive radiation.

b) Name the scientist who influenced Darwin and how? [*CBSE 2016*]

Q.27 ***a)*** Describe Hardy-Weinberg's principle.

b) How does variation lead to speciation ?

c) How is the genetic equilibrium affected by the variations leading to speciation ? [*CBSE 2016*]

Q.28 Diagrammatically represent the experimental set up that proves Oparin-Haldane hypothesis. [*CBSE 2017*]

Q.29 Diagrammatically represent the experimental set up that proved Oparin-Haldane hypothesis. [*CBSE 2017*]

Q.30 Describe the experiment of S.L. Miller on the origin of life. Write the conclusion drawn at the end of the experiment. [*CBSE(F) 2017*]

Q.31 What is disturbance in Hardy-Weinberg genetic equilibrium indicative of ? Expalin how it is caused. [*CBSE 2017*]

Q.32 Rearrange *Ramapithecus, Australopithecus* and *Homo habilis* in the order of their evolution on the Earth. Comment on their evolutionary characteristics. [*CBSE (Al)2017*]

Q.33 ***a)*** How do the observations made during moth collection in pre-and post-industrialized era in England support evolution by Natural Selection ?

b) Explain the phenomenon that is well represented by Darwin's finches other than natural selection. [*CBSE 2017*]

Q.34 What are analogous organs ? Give an example. [*CBSE 2018*]

Q.35 Differentiate between analogous and homologous structures. [*CBSE 2018*]

Q.36 Select and write analogous structures from the list given below : [*CBSE 2018*]

i) Wings of butterfly and birds

ii) Vertebrate hearts

iii) Tendrils of bougainvillea and cucurbita

iv) Tubers of sweet potato and potato

Q.37 Define Hardy-Weinberg Equilibrium principle.

Or

[*CBSE 2018*]

With the help of an algebraic equation, how did Hardy-Weinberg explain that in a given population the frequency of occurence of alleles of a gene is supposed to remain the same through generations?[*CBSE 2018*]

Q.38 Industrial melanism is an example of Natural Selection. Explain.

Or

"Appearance of melonised moths post-industrialisation in England is a classic example of evolution by natural selection." Explain. [*CBSE 2019*]

Q.39 Mention one example each from plants and animals exhibiting divergent evolution. [*CBSE 2019*]

Q.40 *Coelacanth* was caught in South Africa. State the significance of discovery of *Coelacanth* in the evolutionary history of vertebrates. [*CBSE 2019*]

Q.41 According to Darwinian theory of natural selection the rate of appearance of new forms is linked to the life-cycle or the life-span of an organism. Expalin with the help of an example. [*CBSE 2019*]

Q.42 How does industrial melanism support Darwin's theory of Natural Selection ? Explain. [*CBSE 2019*]

Q.43 How is the study of fossile an evidence of evolution of life forms which have taken place on the Earth ? Explain giving two reasons. [*CBSE 2020*]

8 CHAPTER

Human Health and Disease

Q.1 Malaria, typhoid, pneumonia and amoebiasis are some of the human infectious diseases. Which ones of these are transmitted through mechanical carriers ? [*CBSE 2011*]

Q.2 List the two types of immunity a human baby is born with. Explain the differences between the two types. [*CBSE 2011*]

Q.3 Name the two types of immune systems in a human body. Why are cell-mediated and humoral immunities so called? [*CBSE 2011*]

Q.4 State two different roles of spleen in the human body. [*CBSE (Al)2012*]

Q.5 Name the category of the disease : Rheumatoid arthritis. [*CBSE 2012*]

Q.6 Name the two special types of lymphocytes in humans. How do they differ in their roles in immune response? [*CBSE 2012*]

Q.7 Name the cells that act as HIV factory in humans when infected by HIV. Explain the events that occur in the infected cell. [*CBSE 2012*]

Q.8 How do interferons protect us ? [*CBSE 2012,2019*]

Q.9 Why is a person with cuts and bruises following an accident administered tetanus antitoxin ? [*CBSE 2013*]

Q.10 Name one primary and one secondary lymphoid organ in the human body. [*CBSE 2013*]

Q.11 Name the two intermediate hosts which the human liver. fluke depends on to complete its life cycle so as to faciliate parasitization of its primary host. [*CBSE 2014*]

Q.12 Why is *Gambusia* introduced into drains and ponds ? [*CBSE (Al)2014*]

Q.13 How does haemozoin affect the human body when released in blood during malarial infection ?[*CBSE 2014*]

Q.14 What is an autoimmune disease ? Give an example. [*CBSE (F)2014*]

Q.15 What is "withdrawal syndrome" ? List any two symptoms it is characterised by. [*CBSE 2014*]

Q.16 When you go for a trek/trip to any high altitude places, you are advised to take it easy and rest for the first two days. Comment, giving reasons. [*CBSE 2015*]

Or

Why do tribes who live in high altitude of Himalayas experience discomfort in respiration ? How do they get adapted to survive in such a situation ? [*CBSE 2015*]

Q.17 Name the cells HIV (Human Immunodeficiency Virus) gains entry into after infecting the human body. Explain the events that occur in these cell. [*CBSE 2016*]

Q.18 A farmer while working on his farm was bitten by a poisonous snake. The workers in the farm immediately rushed him to the nearby health centre. The docot right away gave him an injection to save his life. What did the doctor inject and why ? Explain. [*CBSE(F) 2017*]

Q.19 Name a human disease, its causal organism, symptoms (any three) and vector, spread by intake of water and food contaminated by human faecal matter. [*CBSE (Al)2017*]

Q.20 A grpup youth were having a 'rave party' in an isolated area and was raided by police. Packets of 'smack' and syringes with needles were found littered around.

a) Why is taking 'smack' considered and abuse ?

b) Syringes and needles used by the youth for taking the drug could could prove to be vary fatal. [*CBSE 2017*]

Q.21 A doctor prescribed morphine as a sedative and pain killer to your cousin who had undergone surgery. Even after recovery, he craved for the prescribed medicine. What do you conclude about his condition, had he continued with the same medication ? After appraising yourself, what measures will you suggest to him to overcome this problem ? Briefly explain any two. [*CBSE 2017*]

Q.22 ***a)*** Name the types of lymphoid organs, lymph nodes and thymus are. Explain the role played by them in causing immune response.

b) Differentiate between innate immunity and acquired immunity. [*CBSE 2017*]

Q.23 Give name of the causative agent, symptoms and preventive measures of Filariasis. [*CBSE 2018*]

Q.24 Define contamination and infestation. [*CBSE 2018*]

Q.25 How do cytokine barriers provide innate immunity in humans ? [*CBSE 2018*]

Q.26 What are Narcotics ? Give their examples and also their harmful effects. [*CBSE 2018*]

Q.27 Name two diseases whose spread can be controlled by the eradication of *Aedes* mosquitoes. [*CBSE 2018*]

Q.28 Which is the most serious and fatal type of malaria? [*CBSE 2019*]

Q.29 Name the causative agent of malignant malaria. [*CBSE 2019*]

Q.30 Describe the life cycle of malarial parasites in detail.

Or

i) Describe the events in the life cycle of *Plasmodium* which take place in the female *Anopheles*

ii) Explain what happens in the RBC's of the human when *Plasmodium* gains entry into them. How does the human body get affected ? [*CBSE 2019*]

Q.31 Explain the relationship between B-lymphocytes and T-lymphocytes in developing an immune response. [*CBSE 2019*]

Q.32 Name any two physiological barriers that provide innate immunity ? [*CBSE 2019*]

Q.33 Explain the relationship between B-lymphocytes and T-lymphocytes in developing an immune response. [*CBSE 2019*]

Q.34 ***a)*** Name the causative agents of pneumonia and common cold.

b) How do these differ in their symptoms ?

c) Mention two symptoms common to both. [*CBSE 2019*]

Q.35 ***a)*** How does the human body respond when vaccine is introduced into it ?

b) It is said that vaccinations are a must for a healthy society. Justify. [*CBSE 2019*]

Q.36 The principle of vaccination is based on the property of

(A) Specificity

(B) Diversity

(C) Memory

(D) Discrimination between 'self' and 'non-self' [*CBSE 2020*]

Q.37 Opioids act act as

(A) Depressants (B) Pain killers

(C) Euphoria providers (D) Stimulants [*CBSE 2020*]

Q.38 Mention the chemical nuature of an antibody and name the type of cells they are produced by. Write the difference between active and passive immune responses on the basis of antibodies. [*CBSE 2020*]

Q.39 Name the cells that act as HIV factory in humans when infected by HIV. Expalin the events that occur in the these infected cells. [*CBSE 2020*]

9 CHAPTER Strategies For Enhancement in Food Production

Q.1 Talk any one significance of interspecific hybridisation in plants. [*CBSE-2005*]

Q.2 List any two economically important products for human obtained from *Apis indica*. [*CBSE-2008*]

Q.3 What is mutation? What is its significance in the biological world ? Name any two agents that induce mutation. [*CBSE-2008*]

Q.4 List any four important components of poultry farm management. [*CBSE-2009*]

Q.5 Honey Collection improves when bee hives are kept in crop fields during the flowering seasons. Explain. [*CBSE-2010*]

Q.6 Explain the advantage of cross-breeding of the two species of Sugarcane in India. [*CBSE-2010*]

Or

How did the plant breeders produce suitable variety of sugarcane for cultivation in North India ? Why did they do it ? [*CBSE-2019*]

Q.7 Name the following :

a) The semi-dwarf variety of wheat which is high-yielding and disease-resistant.

b) Any one inter-specific mammal. [*CBSE 2012*]

Q.8 Write the names of two semi-dwarf and high yielding rice varieties developed in India after 1966.[*CBSE 2012*]

Q.9 How is it possible to recover healthy banana plants from a diseased but desirable quality banana plant ? Explain. [*CBSE (F)2012*]

Q.10 Write the importance of MOET. [*CBSE-2013*]

Q.11 Write the importance of bagging of unisexual flowers in crop improvement programme. [*CBSE-2013*]

Q.12 Name any two diseases that 'Himgiri' Variety of wheat is resistant to. [*CBSE-2013*]

Q.13 Write the importance of MOET. [*CBSE 2013*]

Q.14 Name any two doseases the '*Himgiri*' variety of wheat is resistant to [*CBSE (Al) 2013*]

Q.15 Write an alternate source of protein for animal and human nutrition. [*CBSE(Al) 2014*]

Q.16 List the two steps that are essential for carrying out artificial hybridisation in crop plants and why. [*CBSE 20(F)14*]

Q.17 Why is emasculation of a bisexual flower necessary in Crop improvement Programme ? [*CBSE-2015*]

Q.18 How has mutation breeding helped in improving the production of mung bean crop ? [*CBSE 2015*]

Q.19 Enumerate four objectives for improving the nutritional quality of different crops for the health benefits of the human population by the process of "Biofortification". [*CBSE 2015*]

Q.20 What kind of areas are suitable for practicing apiculture? Write the scientific name of the variety commonly reared for the purpose. [*CBSE 2016*]

Q.21 Suggest four important steps to produce a disease resistant plant through conventional plant breeding technology. [*CBSE 2016*]

Q.22 Plant breeding technique has helped sugar industry in North India. Explain how. [*CBSE 2016*]

Q.23 "Large scale cultivation of *Spirulina* is highly advantageous for human population." Explain giving two reasons. [*CBSE 2016*]

Q.24 A herd of cattle is showing rediced fertility and productivity. Provide one reason and one suggestion to overcome this problem. [*CBSE(Al) 2017*]

Q.25 In MOET technology, two 'mothers' are needed to produce one calf. Justify. [*CBSE 2017*]

Q.26 What is outbreeding ? Mention any two ways it can be carried out. [*CBSE(F) 2017*]

Q.27 "Growing *Spirulina* on a large scale is bebeficial both environmentally and nutritionally for humans." Justify. [*CBSE 2017*]

Q.28 Explain out - breeding, out - crossing and cross-breeding practices in animal husbandr y. [*CBSE 2018*]

Q.29 What is the difference between inbreeding and out breeding ? [*CBSE 2018*]

Q.30 Name the methods employed in animal breeding. In your opinion, which of the methods is the best and Why **?** [*CBSE 2018*]

Q.31 What is somatic hybridisation ? [*CBSE 2018*]

Q.32 You have obtained a high yielding variety of tomato. Name and explain the procedure that ensures retention of the desired characteristics repeatedly in large populations of future generations of the tomato crop. [*CBSE 2018*]

Q.33 It is observed that plant breeders carrying out wheat hybridisation often, take pollen grains from the 'pollen banks'. Do you agree ? Give one reason in support of your answer. [*CBSE 2019*]

Q.34 Suggest a method to overcome excessive inbreeding depression. [*CBSE 2019*]

Q.35 Select two disease resistant crop varieties from the list or crop varieties given below : *Himgiri, Pusa, Gaurav, Pusa Komal, Pusa A*-4 [*CBSE 2019*]

Q.36 "Artificial insemination helps overcome several problem of normal mating in cattle." Do you agree ? Support your answer with any three reasons. [*CBSE 2019*]

Q.37 Name the technique and the property of plant cells that can help to grow somaclones of certain desired variety of apple. Explain how somaclones of apple can be obtained in the lab so as to get the desired variety on a large scale. [*CBSE 2019*]

Q.38 Differentiate between inbreeding and outhreeding in cattle. State one advantage and one disadvantage for each one of them. [*CBSE 2019*]

Q.39 Name and explain the technique that can be used in developing improved carop varieties in plants bearing female flowers only. [*CBSE 2020*]

10 CHAPTER Microbes in Human Welfare

Q.1 Explain the role of baculovirus as biological control agent. Mention their importance in organic farming. [*CBSE-2005*]

Q.2 Write short note an a Yamuna Action plan. [*CBSE-2006, 2007*]

Q.3 Name the group of organisms and substrate they act on to produce biogas. [*CBSE-2007*]

Q.4 What are biopesticides ? Give the scientific name and use of first commercially used biopesticides in the world. [*CBSE-2007*]

Q.5 Name the organisms commercially used for production of SCP. [*CBSE-2009*]

Q.6 Which of the following is a free-living bacteria that can fix nitrogen in soil ? [*CBSE-2009*]

Q.7 Why are some molecules called bioactive molecules ? Give two examples of such molecules. [*CBSE-2011*]

Q.8 Name the genus to which baculoviruses belong. [*CBSE-2011*]

Q.9 Explain the different steps involved in sewage treatment before it can be released into natural water bodies. [*CBSE-2011,2018*]

Or

Describe the steps that are followed during secondary treatment of sewage. [*CBSE 2019*]

Q.10 Why is *Rhizobium* categorised as a 'Symbiotic bacterium? How does it act as a biofertilizers ? [*CBSE-2012*]

Q.11 Explain the significant role of genus *Nucleopolyhedrouirus* in an ecological sensitive area. [*CBSE 2014*]

Q.12 What are biofertilisers ? Describe their role in agriculture. Why are they preferred to chemical fertilisers ? [*CBSE (F)2015*]

Q.13 Name the bacterium responsible for the large holes seen in "Swiss cheese" what are these hole due to ? [*CBSE-2015*]

Q.14 State the medicinal value and the bioactive molecules produced by *Streptococcus*, *Monascus* and *Trichoderma*. [*CBSE 2015*]

Q.15 What are methanogens ? How do they help to generate biogas ? [*CBSE-2015*]

Q.16 Distinguish between the roles flocs and anaerobic sludge digesters in sewage treatment. [*CBSE 2016*]

Q.17 List the events that reduce the Biological Oxygen Demand (BOD) of a primary effluent during sewage treatment. [*CBSE 2016*]

Q.18 Name a free-living and a symbiotic bacterium tht serve as biofertoliser. Why are they so called ? [*CBSE 2016*]

Q.19 Name the microbes that help production of the following products commercially.

(A) Statin (B) Citric acid

(C) Penicillin (D) Butyric acid

[*CBSE 2017*]

Q.20 Give the binomials of two types of yeast and commercial bioactive products they help to produce. [*CBSE 2017*]

Q.21 Name a bioacive molecule, its source organism and the purpose for which it is given to organ transplant. [*CBSE 2017*]

Q.22 How does the application of the fungal genus, *Glomus*, to the agricultural farm increase the farm output ? [*CBSE 2017*]

Q.23 How does the application of cyanobacteria help to improve agriculture output ? [*CBSE 2017*]

Q.24 Why should biocontrol of pests and pathogen be preferred to conventional use of chemical pesticides ? [*CBSE 2018*]

Q.25 To reduce the percentage of population suffering from hunger and malnutrition, microbes are grown on a large scale to act as food supplements. Mention any two microbes used as food supplyement and suggest their role. [*CBSE 2018*]

Q.26 Give an example of a bacterium, a fungus and an insect that are used as biocontrol agents. [*CBSE 2018*]

Q.27 Your advice is sought to improve the nitrogen content of the soil to be used for cultivation of a non-leguminous terrestrial crop. [*CBSE 2018*]

a) Recommend two microbes that can enrich the soil with nitrogen.

b) Why do leguminous crops not require such enrichment of the soil ?

Q.28 Cow dung and water is mixed and this slurry is fed into the biogas plant for digestion by microbes. The person performing the process shares that there is no need to provide inoculum for it, why ? What is the role of microbes at the source ? Under which condition will they be most active and effective ? [*CBSE 2018*]

Q.29 Explain the interrelationship between organic farming and biofertilizers with the help of any three suitable examples. [*CBSE 2019*]

Q.30 Write the scientific name of the organism Alexander fleming worked on and discovered the first antibiotic. Was the organism he worked on a fungus or a bacterium? [*CBSE 2019*]

Q.31 Explain the process of sewage water treatment before it can be discharged into natural water bodies. Why is this treatment essential ? [*CBSE 2019*]

Q.32 ***a)*** A patient who had an organ transplant was given cyclosporin A. Mention the microbial source and state the reason for administration of this bioactive molecule.

b) Bottled fruit juices bought from the market are compared to those made at home. Give reason. [*CBSE 2019*]

Q.33 Effluent from the primary treatment of th sewage is passed through large aeration tanks for biological treatment. Explain the complete process that follows till the water is ready to be released into the natural water bodies. [*CBSE 2019*]

Q.34 Spirulina is a rich source of proteins. Mention the two ways by which large scale culturing of these microbes is possible. [*CBSE 2020*]

Q.35 Name any two autotrophic microbes and state how they serve as biofertilizers. [*CBSE 2020*]

Q.36 Write the scientific name of methanogen bacteria. Where are these bacteria generally found ? Explain their role in biogas production. [*CBSE 2020*]

11 CHAPTER — Microbes in Human Welfare

Q.1 Difference between rDNA and cDNA. [*CBSE 2003*]

Q.2 How can DNA segments, separated by gel electrophoresis, be visualised and isolated ? [*CBSE-2008,2010*]

Q.3 List the steps involved in rDNA technology. [*CBSE-2009*]

Q.4 How and why is bacterium *Thermus aquaticus* employed in rDNA technology ? [*CBSE-2009*]

Q.5 Name the natural source of agarose. Mention one role of agarose in biotechnology. [*CBSE-2009*]

Q.6 Give the characteristic features and source organism of DNA polymerase used in PCR. [*CBSE-2010*]

Or

How is the amplification of a gene of interest carried out using Polymerase Chain Reaction (PCR) ?

Q.7 A rDNA is formed when sticky ends of vector DNA and foreign DNA join. Explain how the sticky ends are formed and get joined. [*CBSE 2010*]

Q.8 Write the convention used for naming restriction enzymes. [*CBSE 2011*]

Q.9 Biotechnologist refers to *Agrobacterium tumifaciens* as a naturalgenetic engineer of plants. Give reasons to support the statement. [*CBSE 2011*]

Q.10 Name the source of DNA polymerase used in PCR technique. Mention why it is used ? [*CBSE-2013*]

Q.11 Why is the enzyme cellulase needed for isolating genetic material from plant cells and not from the animal cells. [*CBSE 2013*]

Q.12 Name the source of the DNA polymerase used in PCR technique. Mention why it is used. [*CBSE 2013*]

Q.13 Explain with the help of a suitable example the naming of a restriction endonuclease. [*CBSE 2014*]

Q.14 State how has *Agrobacterium tumefaciens* been made a useful cloning vector to transfer DNA to plant cells. [*CBSE 2014*]

Q.15 How does a restriction nuclease function ? Explain. [*CBSE 2014*]

Q.16 Name and describe the technique that helps in separating the DNA fragments formed by the use of restriction endonuclease. [*CBSE 2014*]

Q.17 What is meant by denaturation of ds-DNA ? [*CBSE-2015*]

Q.18 Explain with the help of an example the relationship between restriction endonuclease and a plaindromic nucleotide sequence. [*CBSE 2016*]

Q.19 Explian the role of the enzyme *Eco*RI in recombinant DNA technology. [*CBSE (F)2016*]

Q.20 Why does the 'insertional inactivation' method to detect recombinant DNA is preferred to 'antibiotic resistance' procedure ? [*CBSE 2016,2017*]

Q.21 Write the steps you would suggest to the undertaken to obtain a foreign-gene-product. [*CBSE 2017*]

Q.22 ***a)*** Explain the significance of 'palindromic nucleotide sequence' in the formation of recombinant DNA.

b) Write the use of restriction endonuclease in the above process. [*CBSE 2017*]

Q.23 Explain three basic steps to be followed during genetic modification of an organism. [*CBSE 2017*]

Q.24 Which methodology is used while sequencing the total DNA from a cell ? Explain it in detail. [*CBSE 2017*]

Q.25 Why restriction endonucleases are so called ? Explain their role as molecular scissors in recombinant DNA technology. [*CBSE 2018*]

Q.26 Draw and explain the functioning of bioreactor. [*CBSE 2018*]

Q.27 Define plasmid. [*CBSE 2018*]

Q.28 Write the two components of the first artificial recombinant DNA molecule constructed by Cohen and Boyer. [*CBSE 2018*]

Q.29 Explain the roles of the following with the help of an example each in recombinant DNA technology :

(a) Restriction Enzymes ***(b)*** Plasmids [*CBSE 2018*]

Q.30 Why should a bacterium be made 'competent'? [*CBSE 2019*]

Q.31 Explain any two methods of vectorless gene transfer.

Or

Explain the role of microinjection in biotechnology. [*CBSE 2019*]

Q.32 What is the cell that receives a recombinant gene called? [*CBSE 2019*]

Q.33 How does β- galactosidase coding sequence act as a selectable marker ? Explain. Why is it a preferred selectable marker to antibiotic resistance genes ? [*CBSE 2019*]

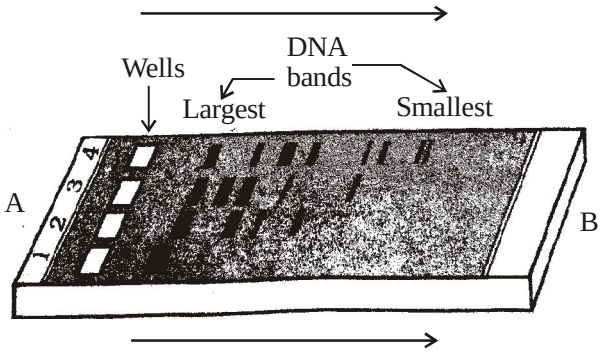
Q.34 Nematode specific genes were introduced into the totacco host plant by using the vector.

(A) Plasmid (B) Bacteriophage

(C) pBR 322 (D) Agrobacterium [*CBSE 2020*]

Q.35 How does EcoRI specifically act on DNA molecule ? Explain. [*CBSE 2020*]

Q.36 Give below is the diagram representing the observations made for separating DNA fragments by Gel electrophoresis technique. Observe the illustration and answer the questions that



a) Why are the DNA fragments seen to ve moving in the direction A → B ?

b) Write the medium used on which DNA fragments separate.

c) Mention how the separated DNA fragments can be visualised for further technical use.

Q.37 Introduction of an alien DNA into a plant host cell is achieved by making them

(A) Competent with bivalent ions

(B) Using microinjections

(C) Using gene gun

(D) Using lysozymes and chitinase [*CBSE 2020*]

12 CHAPTER Biotechnology and Its Applications

Q.1 Why is gene encoding for 'cry' protein inserted into a crop plant ? [*CBSE-2005*]

Q.2 What is meant by ADA deficiency ? [*CBSE 2008*]

Or

State the cause of ADA deficiency ? [*CBSE-2015*]

Q.3 What was the speciality of milk produced by transgenic cow Rosie ? [*CBSE-2008*]

Q.4 Gene expression can be controlled with the help of RNA. Explain method with an example.

Or

What is RNA interference (RNAi) ? Explain with example. [*CBSE 2018*]

Or

How is a transgenic tobacco plant protected against *Meloidegyne incognita* ? Explain the procedure

Q.5 Why is functional insulin thus produced considered better than the ones used earlier by diabetic people ?

[CBSE 2009]

Q.6 List the three molecular diagnostic techniques that helps detect pathogen from suspected patients. [CBSE-2009]

Or

Name the molecular diagnostic technique to detect the presence of a pathogen in early stage of infection. [CBSE-2010]

Q.7 Name the insect pest that is killed by the products of cry I*Ac* gene. [CBSE-2010]

Q.8 Name the source and the types of cry genes isolated from it for incorporation into crops by biotechnologists. Explain how these genes have brought beneficial changes in the genetically modified crops. [CBSE-2011]

Q.9 Name the process involved in the production of nematode resistance tobacco plant, using genetic engineering. Explain the strategy adopted to develop such plants. [CBSE-2011]

Or

Tobacco plants are damaged severly when infested with *Meloidegyne incognita*. Name and explain the strategy that is adopted to stop this infestation.

Q.10 ***a)*** Mention the cause and the body system affected by ADA deficiency in humans. [CBSE(AI)2012]

b) Name the vector used for transfering ADA-cDNA into the recipient cells in Humans. Name the recipient cells.

Q.11 How does a transgenic organism differ from the rest of its population ? Give any two example. [CBSE-2012]

Q.12 Explain how has *Bacillus thuringiensis* contributed in developing resistance to cotton bollworms in cotton plants. [CBSE-2013]

Q.13 Describe any three potential application of genetically modified plants. [CBSE-2015]

Q.14 Highlight any four advantages of genetically modified organisms (GMOs).

Or

Describe any three potential applications of genetically modified plants. [CBSE(Al) 2015]

Q.15 How did an American Company, Eli Lilly use the knowledge of rDNA technology to produce human insulin? [CBSE 2015]

Q.16 What is GMO ? List any five possible advantages of a GMO to a farmer. [CBSE 2016]

Q.17 How has the use of *Agrobacterium* as vectors helped in controlling *Meloidegyne incogintia* infestation in tobacco plants? Explain in correct sequenc[CBSE 2018]

Q.18 Mention the chemical change that proinsulin undergoes, to be able to act as mature insulin. [CBSE 2018]

Q.19 A person is born with a hereditary disease with a weakened immune system due to deficiency of an enzyme. Suggest a technique for complete cure for this disease, identify the deficient enezyme and explain the technique used for cure. [CBSE 2018]

Q.20 How is insulin synthesised in human ? [CBSE 2019]

Or

Write a note on gene therapy.

Q.21 Write any two biochemical/ molecular diagnostic procedures for early detection of viral infection. Explain the principle of any one of them. [CBSE 2019]

Q.22 Name a genus of baculovirus. Why are they considered good biocontrol agents ? [CBSE 2019]

Q.23 A corn farmer has perennial problem of corn-borer infestation in his crop. Being environmentally conscious he does not want to spray insectisides. Suggest solution based on your knowledge of biotechnology. Write the steps to be carried out to achieve it. [CBSE 2019]

Q.24 "Cotton bollowerms enjoy feeding on cotton plants, but get killed when feed on Bt cotton plant." Justify the statement. [CBSE 2020]

Q.25 ***a)*** Mention the cause of ADA deficiency in humans.

b) How is gene therapy carried out to treat the patients suffering from this disease ? [CBSE 2020]

13 CHAPTER

Organisms and Populations

Q.1 What are plant adaptations to extreme conditions of temperature ?

Or

How is a cactus adapted to survive in its habitat ?

[*CBSE -2004*]

Q.2 What are the two primary requirement of a parasite from the host ? [*CBSE-2004*]

Q.3 Name the interaction between a whale and the barnacles growing on its back. [*CBSE-2005,2012*]

Q.4 Differentiate between hibernation and aestivation. Give one example of each. [*CBSE-2006*]

Q.5 What is aerenchyma ? Mention any two specific functions of this tissue in hydrophytes.

[*CBSE-2006, 2009*]

Q.6 Define the growth curve of population and types of growth curves.

Or

What does S-shaped pattern of population growth represent ? How is J-shaped patterns different from it and why ? [*CBSE 2007*]

Q.7 Differentiate between Eurythermal and Stenothermal animals. [*CBSE 2019*]

Or

Which one of the two, stenothermal or eurythermal, shows wide range of distribution on earth and why ?

[*CBSE-2008*]

Q.8 How do organisms cope with stressful external environmental conditions which are localised or of short duration ? [*CBSE-2008, 2011*]

Q.9 How do seals adapt to their natural habitat ? Explain.

Or [*CBSE-2009*]

What is blubber ?

Q.10 How do organisms like fungi, zooplanktons and bears overcome the temporary short lived climatic stress full conditions? Explain. [*CBSE-2010*]

Q.11 List the attributes that populations, but not individual possess. [*CBSE 2015*]

Or

An individual and a population has certain characteristics. Name these attributes with definitions.

Q.12 In a pond there were 200 frog. 4 more were born in a year. Calculate the birth rate of the population.

[*CBSE-2010*]

Q.13 Why do predation avoid eating Monarch butterfly? How does the butterfly develop this protective feature?

[*CBSE-2010*]

Q.14 How does our body adapt to low oxygen availability at high altitudes ? [*CBSE-2011*]

Or

Why do people living in high altitude have more haemoglobin/ high RBC count ?

Q.15 An orchid plant is growing on the branch of mango tree. How do you describe this interaction between the orchid and mango tree ?

Or

What is an interaction called when an orchid grows on a mango plant ? [*CBSE-2012*]

Q.16 What do phytophagous insect feed on ? [*CBSE-2012*]

Q.17 What is the interaction called between cuscuta and shoe flower bush ? [*CBSE-2012*]

Q.18 Name the interaction between sea anemone and hermit crab that grows on it. [*CBSE-2012*]

Q.19 Why are green algae not likely to be found in the deepest strata of the Ocean ? [*CBSE-2013*]

Q.20 State Gause's Competitive Exclusion principle.

[*CBSE (AI)2014*]

Q.22 What is mutualism ? Mention any two examples where the organisms involved are commercially exploited in agriculture. [*CBSE-2015*]

Q.22 Many fresh water animals cannot survive in marine environment. Explain. [*CBSE 2015*]

Q.23 What is mutualism ? Mention any two examples where the organisms involved are commercially exploited in agriculture. [*CBSE (AI)2015*]

Q.24 "Analysis of age-pyramids for human population can provide important inputs for long-term planning strategies." Expalin. [*CBSE 2015*]

Q.25 What does nature's carrying capacity for a species indicate? [*CBSE (F)2016*]

Q.26 In certain seasons we sweat profusely while in some other season we shiver. Explain. [*CBSE 2016*]

Q.27 Why the plants that inhabit a desert are not found in a mangrove ? Give reasons. [*CBSE 2016*]

Q.28 Explain parasitism and co-evolution with the help of one example of each. [*CBSE (AI)2016*]

Q.29 Besides acting as 'conduits' for energy transfer across trophic levels, predators play other important roles. Justify. [*CBSE 2016*]

Q.30 ***a)*** Represent diagrammatically three kinds of age-pyramids for human populations.

b) How does an age pyramid for human population at given point of time helps the policy-makers in planning for future. [*CBSE 2016*]

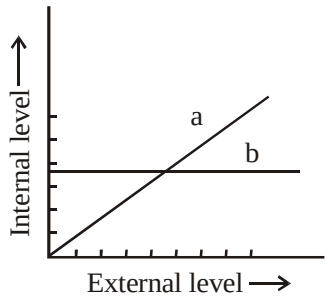
Q.31 When do you describe the relationship between two organisms as mutualistic, competitive and parasitic ? Given one example of each type. [*CBSE (F)2017*]

Q.32 ***a)*** "Organisms may be conformers or regulators." Explain this statement and give one example of each.

b) Why are there more conformers than regulators in the animal world. [*CBSE (Al)2017*]

Q.33 How do kangaroo rats and desert plants adapt themselves to survive in their extreme habitat ? [*CBSE(Al) 2017*]

Q.34 The following graph represents the organismic response to certain environmental condition (*e.g.*, temperature) : [*CBSE 2018*]



i) Which one of these, '*a*' or '*b*', depicts conformers?

ii) What does the other line graph depict ?

iii) How do these organisms differ from each other with reference to homeostasis ?

iv) Mention the category to which human belongs.

Q.35 Following are the responses of different animals to various abiotic factors. Describe each one with the help of an example. [*CBSE 2018*]

i) Regulate ***ii)*** Conform

iii) Migrate ***iv)*** Suspend

Q.36 If 8 individuals in a laboratory population of 80 died in a week, what would be the death rate for population for the said period. [*CBSE 2018*]

Or

Explain "death rate" in a population by taking a suitable example.

Q.37 Compare Euryhaline and stenohaline organisms. [*CBSE 2019*]

Q.38 Give two reasons as to why a weed such a *Calotropis* flourishes in abandoned fields. [*CBSE 2019*]

Q.39 Expalin with the help of an example each, any two ways by which the animals cope with the stressful conditions lasting for a short period in their habitat. [*CBSE 2019*]

Q.40 How is the normal human body temperature of 37° maintained during (i) Summer, and (ii) Winter ? Explain. [*CBSE 2020*]

14 CHAPTER Ecosystem

Q.1 Name the dominant producers in a deep aquatic ecosystem. What other name could you give to a primary consumer ? [*CBSE-2001*]

Q.2 Why is the length of a food chain in ecosystem generally limited to 3-4 trophic levels? Explain with an example. [*CBSE-2004*]

Q.3 What would happen to successive trophic levels in the pyramid of energy, if the rate of reproduction of phytoplankton was slowed down ? Suggest two factors which could cause such a problem in phytoplankton reproduction. [*CBSE-2006*]

Q.4 Difference between a detritivore and a decomposer giving an example of each. [*CBSE-2008*]

Q.5 Construct a pyramid of biomass starting with phytoplankton. Label 3 trophic levels. Is the pyramid upright or inverted ? Why? [*CBSE 2009*]

Q.6 Carbon cycle in nature is a biogeochemical event. Explain. [*CBSE 2009*]

Or

Explain the carbon cycle with the help of a simplified model.

Or

Explain the simplified model of carbon cycle in nature.

Q.7 How does phosphorus cycle differ from carbon cycle? [*CBSE 2010*]

Q.8 List any two ways of measuring the standing crop in an ecosystem. [*CBSE 2010*]

Q.9 Why is an earthworm called a detritivore ? [*CBSE 2012*]

Q.10 "It is possible that a species may occupy more than one trophic level in the same ecosystem at the same time." Explain with the help of one example.

[CBSE (Al)2013]

Q.11 Why is pyramid of energy always upright. Explain. [CBSE-2013,2019]

Or

Pyramid of energy is always upright ? Explain.

Or [CBSE 2010]

It is often said that the pyramid of energy is always upright. On the other hand pyramid of biomass can be both upright and inverted." Explain with the help of examples and sketches. [CBSE 2015]

Q.12 Standing crop and biomass are related to each other, how? [CBSE 2014]

Q.13 State the function of a reservoir in a nutrient cycle. Explain the simplified model of carbon cycle in nature. [CBSE(Al) 2014]

Q.14 "Man can be a primary as well as a secondary consumer." Justify this statement. [CBSE (F)2015]

Q.15 How are productivity, gross productivity, net primary productivity and secondary productivity interrelated ? [CBSE 2015]

Q.16 Why is earthworm considered a farmer's friend ? Explain humification and mineralisation occurring in a decomposition cycle. [CBSE(F) 2015]

Q.17 Describe the advantages for keeping the ecosystems healthy. [CBSE 2015]

Q.18 "In a food-chain, a trophic level represents a functional level, not a species." Explain. [CBSE 2016]

Q.19 Describe the inter-relationship between productivity, gross primary productivity and net productivity. [CBSE(F) 2016]

Q.20 Draw a pyramid of biomass and pyramid of energy in sea. Give your comments on the type of pyramids drawn. [CBSE (F)2016]

Q.21 Differentiate between primary and secondary succession. Provide one example of each. [CBSE (Al)2016]

Q.22 Write a difference between net primary productivity and gross productivity. [CBSE 2017]

Q.23 Describe the effects of human activities in influencing natural ecosystem cycles with special reference to carbon cycle. [CBSE (F)2017]

Q.24 Citing lake as an example of a simple aquatic ecosystem, interpret how various functions of this ecosystem are carried out. Make a food chain that is functional in this ecosystem. [CBSE 2017,2018]

Q.25 What are producers ? [CBSE 2018]

Q.26 Define trophic level. [CBSE 2018]

Q.27 Distinguish between Grazing food chain and detritus food chain. [CBSE 2018]

Q.28 Define standing crop. [CBSE 2018]

Q.29 ***a)*** What is a trophic level in an ecosystem ? What is 'standing crop' with reference to it ?

b) Explain the role of the 'first trophic level' in an ecosystem.

c) How is the detritus food chain connected with the grazing food chain in a natural ecosystem ? [CBSE 2018]

Q.30 Describe the events during humification and mineralisation during decomposition of the soil. [CBSE 2019]

Q.31 Name the factors that regulate decomposition.

Or

Name the type of detritus that decomposes faster. Let List any two factors that enhance the rate of decomposition. [CBSE 2019]

Q.32 Explain what does the equation given below show ?

NPP = GPP – R [CBSE 2019]

Q.33 ***a)*** Name the type of detritus that decomposes faster. List any two factors that enhance the rate of decomposition.

b) Write the different steps taken in humification and mineralisation during the process of decomposition. [CBSE 2019]

Q.34 What is an ecological succession ? [CBSE 2020]

Q.35 Differentiate between primary and secondary succession. Why is secondary succession faster than primary succession? Explain with suitable examples. [CBSE 2020]

Q.36 What are pioneer species ? Give examples of pioneer species in Xerarch and Hydrarch successions respectively. [CBSE 2020]

15 CHAPTER

Biodiversity and Conservation

Q.1 Name two threatened animals species of India. [*CBSE 2003*]

Q.2 What is IUCN Red list ? Give any two uses of this list.

Or

Give the IUCN red list categories of species on the basis of threat. [*CBSE 2005*]

Q.3 List any four factors which may lead to loss of biodiversity. [*CBSE 2006*]

Q.4 Why biodiversity is a matter of concern now ? [*CBSE 2006*]

Q.5 Write the different types of conservation.

Or

Which type of conservation measures, in situ or *ex-situ*, will help the larger number of species to survive? Explain. [*CBSE 2006*]

Q.6 How do human activities cause desertification ? [*CBSE 2009*]

Q.7 A particular species of wild cat is endangered. In order to save them from extinction, which is a desirable approach *in situ* or *ex-situ* ? Justify your answer and explain the difference between the two approaches. [*CBSE 2009*]

Q.8 India has more than 50,000 strains of rice. Mention the level of biodiversity it represents. [*CBSE 2010*]

Q.9 Write the importance of cryopreservation in conservation of biodiversity. [*CBSE 2011*]

Q.10 Name the type of biodiversity represented by the following:

i) 1000 varieties of mangoes in India.

ii) Variation in terms of potency and concentration of reserpine in *Rauwolfia vomitoria* atr growing in different ranges of Himalyas. [*CBSE 2013*]

Q.11 Explain, giving three reasons, why tropics show greatest levels of species diversity [*CBSE (Al)2014*]

Q.12 List any four techniques where the principle of *ex-situ* conservation of biodiversity has been employed. [*CBSE 2015*]

Q.13 List any four techniques where the principle of *ex situ* conservation of biodiversity has been employed. [*CBSE (Al)2015*]

Q.14 Compare narrowly utilitarian and broadly utilitarian approaches to conserve biodiversity, with the help of suitable example. [*CBSE (F)2015*]

Q.15 Mention the kind of biodiversity of more than a thousand varieties of mangoes in India represent. How is it possible? [*CBSE 2016*]

Q.16 Narrowly utilitarian arguments are put forth in support of biodiversity conservation. Explain the other tow arguments that are put forth in support of the same cause. [*CBSE 2016*]

Q.17 Why are sacred groves highly protected ? [*CBSE 2016*]

Q.18 ***a)*** Why should we conserve biodiversity ? How can we do it ?

b) Explain the importance of biodiversity hotspots and sacred groves. [*CBSE 2016*]

Q.19 Name and describe any three causes of biodiversity losses. [*CBSE 2017*]

Q.20 Co-extinction and introduction of alien species too are responsible for the loss of biodiversity. Explain how. [*CBSE (F)2017*]

Q.21 "India has greater ecosystem diversity than Norway." Do you agree with the statement ? Give reasons in support of your answer. [*CBSE 2018*]

Q.22 Write down the various causes of extinction of wild species. [*CBSE 2018*]

Or

What are the causes of loss of Biodiversity ?

Q.23 What are different patterns of Biodiversity ? [*CBSE 2018*]

Q.24 Differentiate between genetic diversity and species diversity. [*CBSE 2018*]

Q.25 ***a)*** "India has greater ecosystem diversity than Norway." Do you agree with the statement ? Give reasons in support of your answer.

b) Write the difference between genetic biodiversity and species biodiversity that exists at all the levels of biological organisation. [*CBSE 2018*]

Q.26 "Stability of a community depends on its species richness." Write how did David Tilman show this experimentally. [*CBSE 2019*]

Q.27 One of the ex situ conservation methods for endangered species is

(A) Biosphere reserves (B) National parks

(C) Cryopreservation (D) Wildlife sanctuaries

[*CBSE 2020*]

Q.28 ***a)*** According to ecologists, tropical regions in the world account for greater biological diversity. Justify.

b) Why are habitat loss and alien species invasion considered as the causes of biodiversity loss ? Explain with the help of an example of each. [*CBSE 2020*]

16 CHAPTER
Environmental Issues

Q.1 What is the percentage contribution of CO_2 in green house effect ? [*CBSE 2005*]

Q.2 Thermal power plants are inevitable in an industrial and densely populated country like ours. What harm they do to the environment ? Also mention any precaution that could be taken to save our enviroment. [*CBSE 2008*]

Q.3 What are :
a) Catalytic converter ?
b) Ultraviolet-B ? [*CBSE 2008*]

Q.4 It has been recorded that the temperature of earth's atmosphere has increased by 0.6°C.
i) What has caused the increase ?
ii) Explain its consequences. [*CBSE, 2008*]

Q.5 How do automobiles fitted with catalytic converters reduce air pollution ? [*CBSE 2009*]

Q.6 Explain the causes of global warming. Why is it a warning to mankind ? [*CBSE 2009*]
Or
Global warming is taking place due to excessive accumulation of which gas ?

Q.7 ***i)*** What would be consequences of failure of the electrostatic precipitator of a thermal plant ?
ii) Mention any four methods by which vehicular air pollution can be controlled. [*CBSE 2009, 2011*]

Q.8 What is the major cause of atmospheric pollution in major cities ? [*CBSE 2010*]

Q.9 Name two green house gases produced by anaerobic microbes. [*CBSE 2010*]

Q.10 Use of lead free petrol or diesel is recommended to reduce the pollutants emitted by automobiles. What role does lead play ? [*CBSE 2010, 2013*]

Q.11 How did Ahmad Khan, plastic sack manufacturer from Bangalore, solve the ever increasing problem of accumulating plastic waste ? [*CBSE 2012*]

Q.12 Mention the effect of global warming on the geographical distribution of stenothermals like amphibians. [*CBSE 2012*]

Q.13 ***a)*** What depletes ozone in the stratosphere ? How does this affect human life ?
b) Explain biomagnification of DDT in an aquatic food chain. How does it affect the bird population ? [*CBSE (Al)2012*]

Q.14 State the effect of UV. light on Human eye. [*CBSE 2013*]

Q.15 In spite of being non-polluting , why are there great apprehensions in using nuclear energy for generating electricity ? [*CBSE(F) 2012*]

Q.16 State the cause of accelerated eutrophication. [*CBSE 2014*]

Q.17 Write the name of the organism that is referred to as the 'Terror of Bengal'. [*CBSE 2014*]

Q.18 With the help of a flow chart, show the phenomenon of biomagnification of DDT in an aquatic food chain. [*CBSE (Al)2015*]

Q.19 Excessive nutrients in a fresh water body cause fish mortality. Give two reasons. [*CBSE 2016*]

Q.20 ***a)*** Name any two places where it is essential to install electrostatic precipitators. Why it is reuired to do so ?
b) Mention one limitation of the electrostatic precipitator. [*CBSE 2016*]

Q.21 Explain the relationship between CFCs and ozone in the stratosphere. [*CBSE(Al) 2016*]

Q.22 Plenty of algal bloom is observed in a pond in your locality.
a) Write what has caused this bloom and how does it affect the quality of water.
b) Suggest a preventive measure. [*CBSE 2017*]

Q.23 Explain the relationship between green house gases and global warming. [*CBSE(F) 2017*]

Q.24 List four benefits to human life by eliminating the use of CFCs. [*CBSE (Al)2017*]

Q.25 Why are there regular reminders to reduce the use of CFCs in the production of industrial and household appliances ? Explain. [*CBSE(F) 2017*]

Q.26 Jusity the need for signing of Montreal Protocol by the participating nations. [*CBSE (F)2017*]

Q.27 List five methods to control noise pollution. [*CBSE 2019*]

Q.28 What are the effects of noise pollution on human health? [*CBSE 2019*]

Q.29 List the GHG's other than CO_2. [*CBSE 2019*]

Q.30 Justify the need for signing of 'Montreal Protocol' by the participating nations in 1987. [*CBSE 2019*]

Q.31 Explain any three remedial measures to overcome the acute air pollution in our cities. [*CBSE 2019*]

Q.32 Write any three ways by which noise pollution affects then human body adversely. List any three steps that should be followed in order to reduce noise pollution. [*CBSE 2019*]

Q.33 A plastic sack manufacturer in Bengaluru, Ahmed Khan has managed to find an an ideal solution to the problem of plastic waste. Explain in five steps the efforts of Ahmed Khan to meet the challenges of solid waste mangement. [*CBSE 2019*]

Q.34 Explain biomagnificaion. How does biomagnification of DDT affect the population of fisheating birds ? [*CBSE 2019*]

Q.35 Ozone gas is continuously formed in the stratosphere by

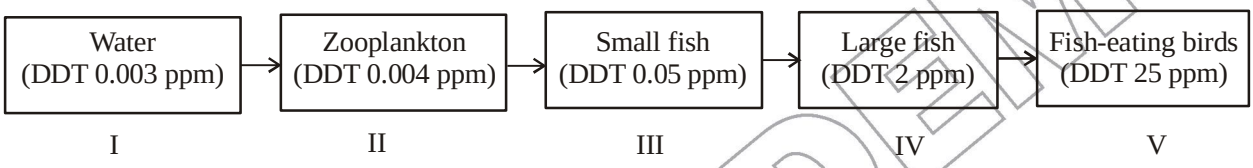
(A) Action of UV rays on nascent oxygen (B) Reaction of oxygen with water vapour

(C) Action of UV rays on molecular oxygen (D) Action of UV rays on water vapour [*CBSE 2020*]

Q.36 Explain the solutions f ound by Ahmed Khan, a Bengaluru based plastic sack manufacturer, after realising the problems created by plastic wastes. [*CBSE 2020*]

Q.37 Explain the effect of the sewage discharges on the characteristic (quality) of a river. [*CBSE 2020*]

Q.38 Indiscriminate use of chemicals, pesticides and weedicides by humans are polluting our bodies, which in turn are harming the living organisms. Study the flow chart and answer the questions based on it.



a) Why does the concentration of DDT seem to be considerably high in the top consumer ?

b) How would the organisms at the highest level be affected ?

c) Name the phenomenon observed. [*CBSE 2020*]