ASSIGNMENT QUESTIONS
BIOLOGY
Class: XII
CHAPTER 1: Reproduction in organism

1. Name the vegetative propagules in the following.
   i) Banana    ii) Agave    iii) Bryophyllum    iv) Water Hyacinth

2. Differentiate between the following.
   a. Oviparous and viviparous
   b. Pre-fertilization and post-fertilization events

3. How is the sexuality of papaya plant different from a maize plant?

4. In which organisms gametes are non motile? How do they reach the female gamete for fertilization?

5. Give reasons:
   a) Rotifers are called Parthenocarpic organisms
   b) Mammals living in natural wild condition are seasonal breeders
   c) Water Hyacinth is called an invasive weed
   d) Bamboo plants are considered to have unusual flowering response.
   e) Marchantia is considered dioecious.
ASSIGNMENT QUESTIONS
BIOLOGY
Class: XII

CHAPTER 2: Sexual Reproduction in Flowering plants

1. Explain the structure of megasporangium and female gametophyte with diagram.

2. Even though microspore has 2 male gametes why a plant require 10 microspores to fertilize 10 ovules.

3. Design the various steps that you would plan to combine desirable characters of 2 species. What are such experiments called?

4. Draw LS of flower showing growth of pollen tube.

5. Draw a dicot embryo before and after a heart shaped embryo is formed.

6. Give reasons why:
   a. Pollen products are sold in the market
   b. Yucca moth deposits its eggs in the ovary locule of yucca plant.
   c. Pollen of the wrong type does not germinate on stigma.
   d. Active research is on to understand genetics of apomixes.
   e. Pollens are well preserved in fossils.

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ASSIGNMENT QUESTIONS
BIOLOGY
CHAPTER 3: Human Reproduction

Class: XII

1. Due to congenital defect, a woman does not have fimbriae in the fallopian tube. How will it affect her?

2. What is the difference between spermiogenesis and spermiation?

3. What is the role of LH in a human male and female?

4. Justify giving reasons:
   a. Corpus luteum secretes large amounts of progesterone if egg is fertilized.
   b. During pregnancy there is an increase in the levels of hormones like estrogens, progesterons, cortisol, prolactin, thyrixine etc in maternal blood.
   c. Colostrum is absolutely essential for the newborn.
   d. Placenta can be referred to as ‘transporting organ’.

5. List out the sequence of events after fertilization until implantation of the human embryo.

6. How many primary follicle will be there at the time of puberty in the human ovary?

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ASSIGNMENT QUESTIONS
BIOLOGY
CHAPTER 4: REPRODUCTIVE HEALTH

1. Define reproductive health as given by WHO?

2. What are the 3 important serious measures taken by Indian government to check the population growth rate?

3. Justify giving reasons:
   a. Sterilisation is referred as a terminal method of contraception.
   b. Use of condoms have increased in recent years.
   c. STD affected person often do not take proper treatment.
   d. Selection of a suitable contraceptive should always be done in consultation with qualified medical professionals.

4. Which is the most widely accepted method of contraceptive in India? Write a short note on it.

5. Name the following:
   a. A new oral contraceptive for the females that was developed in CDRI.
   b. Foetal sex determination test based on the chromosomal pattern of the amniotic fluid.
   c. Avoid coitus during the fertile period.
   d. Contraceptive device that covers the vagina and cervix in female.
   e. Contraceptive device that covers the cervix during coitus.
   f. Hormones that is usually present in implants.

6. Which ART is best for the following situations?
a. Female who cannot produce egg.
b. Sperm does not fertilize the egg even in IVF.
c. Inability of a male partner to inseminate the female.
d. Male have very low sperm counts in the ejaculates.
ASSIGNMENT -5

BIOLOGY                     Class: XII

CHAPTER 5: Principles of Inheritance and Variation

1. Explain how Mendel carried out the hybridization experiment in pea plant.

2. What is the meaning of chromosomes? Why was it named so?

3. From table 5.3 identify which column represents chromosome and which represents the gene and justify why?

4. How did Morgan use symbols for his dihybrid cross. Explain with examples?

5. Give an example of an insect in which the sex determination is similar to man. Justify why?

6. Give the aminoacid sequence of HbA peptide up to the 7 aminoacid in a normal haemoglobin.

7. Identify the disease from the symptoms.
   a. Male with gynacomastia.
   b. Monosomy of the sex chromosome
   c. Non stop bleeding from a simple cut.
   d. Haemoglobin polymerises under low oxygen tension.
   e. Accumulation of Phenyl pyruvic acid in the body.
8. Study the given pedigree chart and answer the questions that follow:

(a) Is the trait recessive or dominant?
(b) Is the trait sex-linked or autosomal?
(c) Give the genotypes of the parents in generation I and of their third and fourth child in generation II.

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ASSIGNMENT -6

BIOLOGY                                           Class: XII

CHAPTER 6: Molecular basis of inheritance

1. What features of the DNA generates a uniform distance between the two polynucleotide strands.

2. If there are 400 base pairs in a DNA segment what will be the length of DNA?

3. Give appropriate names for the following:
   a. DNA wrapped round histone octomere.
   b. Beads on string structure in nucleus
   c. Transcriptionally active chromatin.

4. When heat killed S strain was treated with enzyme ‘X’ and mixed with live R strain and injected into mice, there was no transformation. Explain the above result and identify ‘X’.

5. When a virus is grown in radioactive phosphorus medium why is the radioactivity detected only in its DNA?

6. State the various conclusions derived by Griffith in his experiment.

7. Justify the statement that DNA is chemically less reactive and structurally more stable when compared to RNA.

8. What is the cause of polyploidy in a cell? Define polyploidy and name an organism in which polyploidy is common.

9. Which RNA in bacteria helps in the formation of peptide bond, and in which cell organelle is it found?

10. Answer the questions in relation to lac operon.
    a. Which gene in lac operon is constitutive?
    b. What process converts lac mRNA into enzymes?
C. Why is the structural gene in lac operon considered polycistronic?

11. Explain the following statements:
   a. Genes in eukaryote is split.
   b. rRNA play structural and catalytic role during translation.

12. What is the role of sigma and Rho factor during transcription in eukaryote?
ASSIGNMENT -7
BIOLOGY
CHAPTER 7: EVOLUTION

1. Name the following
   a. Organic molecule formed in S.L. Miller experiment.
   b. Placental mammal that shows Convergent evolution with spotted cuscus.
   c. Reptile that went back into water to evolve into fish like reptiles probably 200 mya.
   d. The plant which helped De vries to give the mutation theory.
   e. Industrial pollution indicator.

2. Define the following term:
   Gene pool, Saltation, Genetic drift, Adaptive radiation.

3. Give the brief account of human evolution.

4. State the essence of Darwinian theory of evolution.

5. Give examples of evolution by anthropogenic action.

6. With an example explain that during evolution by natural selection, no variant is completely wiped out.

7. Give a graphical representation of the operation of natural selection when it selects individuals with peripheral character.

8. Name the 2 groups of seed ferns.

9. “There is a genetic basis for getting selected and to evolve “. How did Darwin explain this process about evolution?

10. What are the 3 connotations of the theory of special creation?

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CHAPTER 8: Human Health and Disease

1. Who discovered the circulation of blood and which hypothesis of health was disproved by him?
2. Define Genetic disorder.
3. Identify the disease based on one of its typical symptom.
   a. Chill and high fever recurring every 3-4 days
   b. Intestinal Perforation
   c. Lips and fingernails turn blue.
   d. Stools with excess mucous and blood clots
   e. Internal bleeding
   f. Gross deformity of genital organs.
4. With a diagram explain the protective protein produced by the B lymphocytes.
5. Name the barrier of innate immunity that can give us the following protection.
   a. Prevent microbial growth
   b. Trap microbes
   c. Destroy microbes
   d. Protect non infected cell from virus.
6. Explain the role of T lymphocytes in immunity.
7. Intake of which drug causes the following:
   a. Emphysema
   b. Slows down body functions
   c. Hallucination
   d. Liver Cirrhosis
8. List out the most common warning signs of drug and alcohol.
   i) Higher doses of drugs need to be taken with repeated use.
   ii) Normal cells can become cancer cells.
10. Explain the reproduction of plasmodium.
ASSIGNMENT -9
BIOLOGY

CHAPTER 10 –Microbes in Human welfare

1. What are viroids and prions?

2. Name the organism which is responsible for the following action:
   - Produce large amount of CO2 in Swiss cheese
   - Coagulate and partially digest milk protein.
   - Used for fermenting malt cereals
   - Produce blood cholesterol lowering agent
   - Virus used in making narrow spectrum insecticide
   - Fungus that resist root borne pathogen

3. Microbes can be used instead of chemical fertilizers and pesticides. Explain.

4. What was the work carried out by IARI and KVIC that was useful to villagers?

5. Explain biogas plant with a diagram.

6. If you are a biological farmer what are the various aspects of organisms you should be familiar with?

7. What is the role of the following in STP?
   - Aeration tank
   - Anaerobic sludge digester.

8. What is the role of the following:
   a. Statins
   b. Clot buster
   c. Lipase
   d. Pectinase

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ASSIGNMENT -10

BIOLOGY

Class: XII

CHAPTER 13: Organism and Population

1. How are the biome named based on annual temperature and precipitation?
2. Name the various categories of biotic components present in a habitat?
3. Name 2 habitats where the average temperature exceeds 100°C.
4. Justify the statement “Level of thermal tolerance of species determine the extent of their geographical distribution “.
5. Define the following terms:
   Photoperiod , hypersaline lagoon , Homeostasis.
6. What determines the percolation and water holding capacity of the soils.
7. Where is the Keolado national park located in India and what type of birds come there and from where?
8. Enumerate the advantage of CAM in a plant.
9. How do organisms overcome stressful external conditions
10. Mention 2 adaptations shown by the following organisms:
    a. Kangaroo rat
    b. Opuntia
    c. Seals
    d. Desert Lizards

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