



# SRI VIDYANIKETAN PU COLLEGE

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## BIOLOGY

### II PUC Important Question Papers

#### REPRODUCTION IN ORGANISMS

##### I ONE MARK QUESTIONS.

1. Define parthenogenesis.
2. Define embryogenesis.
3. Define clone?
4. What is juvenile phase of life span?
5. What are hermaphrodites?
6. Name the reproductive cycle that occur in non-primates.
7. How many chromosomes are there in meiocytes of human beings?
8. Name the part of the flower which develops into fruit after fertilization.
9. Mention the asexual reproductive structure in *Penicillium*?
10. Mention the asexual reproductive structure in sponges?
11. Name the plant that flowers once in 12 years?
12. Name the species of plant that flowers once in lifetime?
13. All papaya plants bear flowers, but fruits are seen only in some. Why?
14. The organism in which cell division itself a mode of reproduction?
15. Name the most invasive aquatic plant which is called "Terror of Bengal".
16. The chances of survival of young once are greater in viviparous organisms?
17. Define encystation?
18. What are meiocytes?

##### II TWO MARK QUESTIONS.

1. Mention any two differences between homogametes heterogametes.
2. What are hermaphrodite? Mention one example.
3. Differentiate between menstrual cycle and oestrus cycle.
4. Differentiate seasonal breeders from continuous breeders.
5. What is embryogenesis? Mention two important events that occur during embryogenesis.

6. Differentiate between pericarp and perisperm.
7. What is parthenogenesis? Give example.
8. What is heterothallic condition? Differentiate between staminate and pistillate flower.
9. Offsprings formed due to sexual reproduction have better chances of survival, why?
10. Differentiate between gametogenesis and embryogenesis.
11. Explain why meiosis and gametogenesis are always interlinked?
12. Differentiate between zoospore and conidia.

### **III THREE MARK QUESTIONS.**

1. Mention the phases of life cycle.
2. Name the asexual reproductive structures in Chlamydomonas, Yeast, Water hyacinth.
3. Why is water hyacinth called “scourge of water bodies”?
4. Differentiate between sexual and asexual reproduction.
5. Differentiate between internal and external fertilization.
6. Differentiate between oviparous and viviparous animal with suitable example.
7. Explain encystation and sporulation in Amoeba.
8. What are vegetative propagules? Name the vegetative propagule for various organisms.
9. Explain any three modes of asexual reproduction.
10. Write post fertilization events occurs in animals and plants.

## SEXUAL REPRODUCTION IN FLOWERING PLANTS

### **I ONE MARK QUESTIONS.**

1. What is meant by monosporic development of female gametophyte?
2. Papaya plants exhibit xenogamy only. Why?
3. What is emasculation?
4. What is pericarp?
5. What is perisperm?
6. Name the protective substance present on the pollen envelop to tide over during adverse condition.
7. Define parthenocarpy.
8. Name the stage of the occurrence of more than one embryo in a seed.
9. Define xenogamy.
10. Name the tissue that nourishes pollen mother cells.
11. How are pollengrains preserved?
12. What are germ pores?
13. Name the tallest flower.
14. What is apomixis?

### **II TWO MARK QUESTIONS.**

1. What are cleistogamous flowers? Write their significance.
2. What are false fruits? Give example.
3. Write the feature of anemophilous flowers.
4. What is apomixes? What is its significance?
5. Explain the mechanism of pollination in sea grasses.
6. Differentiate between apocarpous and syncarpous ovary.
7. Mention any two significance of seed?
8. Write any two characters of water pollinated flowers.
9. Differentiate between Geitonogamy and Xenogamy.
10. Differentiate between Albuminous seeds and Exalbuminous seeds with examples.
11. Compare chasmogamous and cleistogamous flowers mentioning suitable example for each.
12. Differentiate between Coleoptile and Coleorhizae.
13. Name the early stages in the development of embryo in angiosperms.

### **III THREE MARK QUESTIONS.**

1. Briefly explain the structure of pollen grains.
2. How does pollination is achieved in vallisneria.
3. Write a short note on pollen-pistil interacton.
4. Mention any three characteristic features of flowers that are pollinated by animals.
5. Write a short note on viability of seed with suitable examples.
6. What is artificial hybridization? By which technique it is achieved?
7. What is pollination? Mention any four feature of wind pollinated flowers.
8. Write conditions which are favourable for autogamy.

### **IV FIVE MARK QUESTIONS.**

1. Explain the transverse section of yound anther with a labeled diagram.
2. Draw a neat labeled diagram of a typical Anatropous ovule of angiosperms.  
Explain the structure of megasporangium (Ovule).
3. What is megasporogenesis? Explain the development of eight nucleated embryosac in flowering plants.
4. Describe the structure of mature embryo sac of Angiosperm.
5. What is double fertilization? Describe fertilized embryo sac with neat labeled diagram.
6. Describe the out breeding devices that prevent the autogamy.
7. Describe the structure of dicot embryo with the help of a labelled diagram.
8. Describe the structure of monocot embryo with the help of labeled diagram.
9. Write three advantages offered by the seeds to angiosperm.

## **PRINCIPLES OF INHERITANCE AND VARIATION**

### **I ONE MARK QUESTIONS.**

1. What is an allele?
2. Mention the genotypic ratio of inheritance of one gene cross or monohybrid cross.
3. Mention the phenotypic ratio of inheritance of two genes cross dihybrid cross.
4. Write the chromosomal complement of Turner's syndrome.
5. Give an example for female heterogamety.
6. Mention the phenotypic ratio of inheritance of one gene cross or monohybrid cross.
7. What is linkage?
8. Why human male is called heterogametic?
9. Women are blamed for giving birth to female child. How do you prove this as a false statement?
10. Define aneuploidy.
11. Gynecomastia is a symptom of which genetic syndrome?
12. Who is considered as father of experimental genetics?
13. In case of sickle cells anemia which amino acid replaces glutamic acid of haemoglobin?
14. What is recombination?
15. Who discovered X-chromosome?
16. Hemophilia is also called Royal disease. Justify.
17. What is pleiotropy?

### **II TWO MARK QUESTIONS.**

1. What is test cross? Mention its significance.
2. Mention two symptoms of Turner's syndrome.
3. What are the conclusions drawn by T.H. Morgan from crossing experiment in *Drosophila melanogaster* with respect to linkage.
4. The shape of RBC's of sickle cell anaemia patients change to elongated sickle like structure. Give reason.
5. Mention the possible genotypes of A and B blood group individual.
6. Why has T H Morgan selected fruit fly for his genetical experiment?
7. Write four symptoms of Down's syndrome.
8. What is incomplete dominance? Give an example.

9. What are Mendelian disorders? Give two examples.
10. Distinguish between homozygous and heterozygous plants.
11. Define point mutation. Give an example for point mutation.
12. What are the conclusions drawn by T H Morgan from the crossing experiments in *Drosophila* with respect to Linkage.
13. Write the karyotype and mention any two symptoms of Klinefelter's syndrome.
14. Mention the genotype of the parents when their children are with A, B, AB, O blood groups.
15. What are the two types of disorders of humans where the Karyotype is 47?

### III THREE MARK QUESTIONS.

1. Mention the causes and effects of Phenylketonuria (PKU).
2. What is meiotic heterogamety? Explain sex determination in humans.
3. Explain the Homozygous Genotype of 'A' 'B' and 'O' blood groups.
4. Briefly explain sex determination in human being.
5. Describe haplodiploid sex determination system in Honey bees.
6. Write a note on colour blindness.
7. Explain the mechanism of XO-type of sex determination in insects.
8. What is phenylketonuria? Write the causes and the symptoms of phenyl ketonuria.
9. Write a note on Klinefelter's syndrome [XXX-complex].
10. Write a note on Turner's syndrome [XO-complex].
11. "Mendel's work was not recognised during his time". Give any three reasons.

### IV FIVE MARK QUESTIONS.

1. With reference to flower colour in *snapdragon*, explain incomplete dominance.
2. Explain Mendel's experiment to describe inheritance of one gene with reference to height of pea plants.
3. What is law of segregation? Explain it with monohybrid cross.
4. Explain the cause, symptoms and inheritance pattern of sickle cell anemia.

## **MOLECULAR BASIS OF INHERITANCE**

### **I ONE MARK QUESTIONS.**

1. Lactose is termed as inducer in lac operon. Give reason.
2. Define transcription.
3. What is euchromatin?
4. Why DNA replication is called semiconservative?
5. Which chromosome of man has the least number of genes?
6. On which bacteria Griffith conducted transformation experiment?
7. Name the inducer which regulates the switching on and off of the lac operon.
8. Which type of R.N.A polymerase enzyme transcribes precursor m.R.N.A?
9. Name the process in which introns are removed and exons are joined in a defined order.
10. What is reverse transcription?
11. What is origin of replication?
13. What are split genes?
14. Name the enzyme which is helpful in polymerizing RNA with defined sequences in a template independent manner.
15. What are UTR's?
16. What is ribozyme?

### **II TWO MARK QUESTIONS.**

1. t-RNA is an adaptor molecule comment.
2. "Both the strands of DNA molecule do not act as templates during transcription". Justify with two reasons.
3. Mention the four levels at which regulation of gene expression can be exerted in eukaryotes.
4. Name the scientist who found out D.N.A and what was the name given by him?
5. Write the two basic amino acid residues which are rich in histones.
6. Codons AUG has dual function. Give reason.
7. Mention two applications of human genome project.

### **III THREE MARK QUESTIONS.**

1. RNA polymerases in eukaryotes show divisions of labour. Substantiate.

2. Mention any three applications of DNA fingerprinting technique.
3. DNA is the better genetic material than RNA. Justify the statement with three comparative reasons.
4. Mention the two approaches used while sequencing human genome.
5. Differentiate template and coding strands of DNA.

#### **IV FIVE MARK QUESTIONS.**

1. List out the salient features of Double helix model of DNA.
2. Define nucleosome? Explain with a diagram the structure of nucleosome and comment on how DNA helix is packed in the nucleus.
3. Describe the process of DNA replication with the help of a diagram.
4. Describe Fredrick griffith experiment to show transformation in bacteria.
5. Oswald Avery and others have continued Griffith's transforming principle to prove DNA as genetic material-substantiate.
6. DNA replication is said to be semiconservative. Why? Describe the experimental proof of Meselson and Stahl to show DNA replication is semiconservative.
7. Hershey and Chases experiment.
8. a) Mention the criteria for a molecule that acts as a genetic material.  
b) Write the schematic representation of transcription unit.
9. a) Mention the chemical linkages between the components of DNA.  
b) Differentiate euchromatin and heterochromatin.  
c) Differentiate between polycistronic gene and monocistronic genes.
10. The process of transcription in bacteria.
11. With a diagram explain the structure of an adapter (tRNA) molecule.
12. List the goals of human genome project.
13. List the features of human genome project.
14. Describe the process of translation of mRNA.
15. Write the characters of genetic code.
16. a) Differentiate between point mutation and frame shift mutation.  
b) Explain post transcriptional modifications occurs in eukaryotes.
17. Describe *Lac* operon concept with labelled sketch.
18. Mention the steps involved in DNA fingerprinting.



## HUMAN REPRODUCTION

### **I ONE MARK QUESTIONS.**

1. What is ovulation?
2. Name the cells that secrete androgens.
3. What is menopause?
4. Name the physical and physiological connection between maternal body and embryo (foetus).
5. Why is oxytocin necessary for parturition?
6. What is menarche?
7. What is colostrum?
8. Ovulation takes place on 14 day of menstrual cycle. Why?
9. Mention the function of Sertoli cells of testes.
10. Name the Hormone secreted by corpus luteum.
11. What is implantation?
12. What is foetal ejection reflex?
13. Name the hormone released by the ovary in the later phase of pregnancy.
14. Name the layer of the uterus that exhibits strong contraction during parturition.
15. Name the finger like projections on trophoblast that appear during implantation.
16. In which site of fallopian tube does fertilization take place?

### **II TWO MARK QUESTIONS.**

1. List any four hormones secreted by placenta.
2. Placenta is the structural and functional unit between foetus & maternal body. Substantiate the statement.
3. Mention the accessory ducts of male reproductive system.
4. What is parturition? Which hormones are involved in induction of parturition?
5. What is placenta? Human placenta acts as temporary endocrine gland. Give reason.

### **III THREE MARK QUESTIONS.**

1. Draw a neat labelled diagram of sectional view of a seminiferous tubule.
2. Write any four differences between sperm and ovum.
3. Write the functions of placenta.

4. Define

a) Foetal ejection reflex      b) Umbilical cord      c) Lactation      d) Colostrums

5. Write the differences between spermatogenesis and oogenesis.

#### **IV FIVE MARK QUESTIONS.**

1. Draw a neat labelled diagram of *human male reproductive system*.

2. Name the parts of male reproductive system and their functions.

3. What is spermatogenesis? Explain the process of spermatogenesis.

4. Draw a neat labelled diagram of human sperm.

5. Draw a neat labelled diagram of *human female reproductive system*.

6. Name the parts of female reproductive system and their function.

7. What is oogenesis? Explain the process of oogenesis.

8. With the help of diagram explain the structure human mammary gland.

9. What is menstrual cycle? Describe the different phases in it.

10. List the major features of embryonic development at various months of pregnancy.

## REPRODUCTIVE HEALTH

### **I ONE MARK QUESTIONS.**

1. What is amniocentesis?
2. Name two hormone releasing IUD's.
3. Define reproductive health.
4. Expand RCH.
5. Name causative organism for syphilis.
6. Name the new oral contraceptive off female developed by CDRI.
7. What is lactational amenorrhea?
8. Expand the abbreviations IUDs.
9. Give an example for non-medicated IUDs.
10. Give an example for copper releasing IUDs.
11. Give an example for hormone releasing IUDs.
12. Name "once a week" new oral contraceptive pill.
13. What is vasectomy?
14. What is tubectomy?
15. What is MTP (Medical Termination of Pregnancy).

### **II TWO MARK QUESTIONS.**

1. How an oral pill helps in birth control?
2. What are sexually transmitted diseases?
3. Mention any four sexually transmitted diseases.
4. Mention any two natural methods of birth control.
5. Write any two simple principles to prevent sexually transmitted diseases.
6. Mention the reasons for population explosion.
7. Name two hormone releasing IUD's.
8. What is amniocentesis? Why it is legally banned in our country?
9. Write the general symptoms of STD?

### **III THREE MARK QUESTIONS.**

1. Suggest any three assisted reproductive technologies to overcome infertility.
2. What is infertility? Give reasons for infertility in humans.
3. List the measures to prevent sexually transmitted diseases (STD's) simple.

4. a) What is medical termination of pregnancy (MTP)? Mention the safe period for MTP.  
b) Write three simple principles to prevent STDs.
5. a) List any three reasons for population explosion.  
b) Name human male and female sterilization procedures.
6. What is infertility? How infertility is treated by Assisted Reproductive Technologies like GIFT and ICSI.
7. a) What are the features of an ideal contraceptive?  
b) Mention the natural methods of contraception.
8. What is infertility? Mention the causes of infertility.

#### **IV FIVE MARK QUESTIONS.**

1. What is contraception? Briefly explain two barrier methods and two surgical methods to prevent contraception.
2. What are contraceptives? Explain four different non-surgical contraceptive methods.
3. What is assisted reproductive technology (ART)? Explain assisted reproductive technology to overcome infertility.

## HUMAN HEALTH AND DISEASES

### I ANSWER THE FOLLOWING QUESTIONS.

1. Name the causative agent of elephantiasis.
2. What is an allergy?
3. Mention the cell involved in cell mediated immunity.
4. Name the causative organism of pneumonia.
5. Name the plant from which cocaine is obtained.
6. Name the enzyme by which the HIV genome replicates in the host cell.
7. Name the disease diagnosed by *Widal* test.
8. What are inteferons?
9. Name the diagnostic test for AIDS.
10. From which plant morphine is extracted.
11. Name the type of antibodies produced during allergy.
12. Write the name of toxic substance responsible for fever and chill in Malaria.
13. Name the disease caused by *Haemophilus influenzae*.
14. Mention the type of antibody present in the colostrums.
15. Write the infectious forms of plasmodium which enter human body through mosquito bite.
16. Mention the role of Alpha interferon in treatment of cancer. Alpha interferon activates.
17. Name the caustive agent, mode of transmission and symptoms of following diseases.
  - a) COMMON COLD
  - b) TYPHOID (ENTERIC FEVER)
  - c) PNEUMONIA
  - d) MALARIA
  - e) AMOEBIASIS (AMOEBIC DYSENTRY)
  - f) ASCARIASIS
  - g) ELEPHANTIASIS OR FILIARIASIS
  - h) RINGWORM
18. Differentiate between active immunity and passive immunity.
19. Distinguish between benign tumor and malignant tumor.
20. List any two methods of HIV transmission.
21. What is innate immunity? Mention any two types of innate immunity barriers.
22. What is an allergy? Name the two chemicals released by mast cells in the body during allergy.

### II THREE MARK QUESTIONS.

1. What is contact inhibition?

2. What is tumor? Mention the types of tumors.
3. Mention any three characteristics of cancer.
4. Name the pathogen, vector and symptom of Malaria.
5. Mention three types of carcinogens with an example for each.
6. a) Differentiate between active immunity and passive immunity.  
b) Define allergy.
7. Sketch the diagrammatic representation of replication of retrovirus inside an animal cell.
8. What is biopsy test? Mention any two techniques of cancer detection and diagnosis.
9. Name the diseases caused by the following organisms.  
a) Rhino virus      b) Wuchereria bancrofti      c) Haemophilus influenza
10. Mention the four barriers of innate immunity with an example for each.
11. a) Define immunity and name two different types of immunity.  
b) Draw a neat labelled diagram of structure of an antibody molecule.
12. Describe the measures taken to control alcohol and drug abuse in adolescents.