ZOOLOGY / BIO – ZOOLOGY

IMPORTANT QUESTIONS – QUARTERLY EXAMINATION

CHAPTER – I – REPRODUCTION IN ORGANISMS

2 MARKS

1. Name the phenomenon where the female gamete develops into a new organism with an avian example.
2. Why is the offspring formed by asexual reproduction referred as a clone?
3. Name the different types of binary fission.
4. What is peculiar about the cell division of paramecium?
5. Define Plasmotomy.
6. Define Morphallaxis
7. Define epimorphosis.
8. What is syngamy?
9. Define Paedogenesis.
10. Define conjugation.
11. Define fragmentation.

3 MARKS

1. Define Apolysis
2. Explain the types of fertilization based on the place of occurrence.
3. Explain multiple fission in amoeba.
4. What is parthenogenesis? Give two examples.
5. Define i) Arrhenotoky ii) Thelytoky iii) Amphitoky
6. Define budding. Explain its types.
7. What is strobilation?
8. Explain regeneration.

5 MARKS

1. Explain Parthenogenesis.
2. Explain different kinds of syngamy in living organisms.
3. Explain the different phases of life cycle in an organism.
4. Explain Binary fission and its types

CHAPTER – II – HUMAN REPRODUCTION

2 MARKS

1. Mention the differences between spermiogenesis and spermatogenesis
2. Expand the acronyms.

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a) FSH b) LH c) hCG d) hPL

3. How is polyspermy avoided in humans.
4. What is Inhibin? State its functions.
5. Define Gametogenesis.
6. What is Insemination?
7. Define Cleavage.
8. Name the accessory glands of Male Reproductive System.
9. Define Leydig Cells.
10. Define Mesovarium.
11. Define Hyalurondaise.
12. Define LH Surge.
13. Define Menopause.
14. Define Implantation.
15. Define parturition.
16. Define Lactation.
17. Name the three layers of the wall of uterus.
18. Define Spermiation.
19. Define Morula.
20. What is Ectopic pregnancy?
21. Define Monozygotic Twins.
22. Define Dizygotic Twins.
23. Define Siamese Twins.
24. Name the extra embryonic membrane in humans.
25. Define Azoospermia.
26. Define prostatitis.
27. Define orchidectomy.
28. Define Acrosome.
29. Define mitochondrial spiral or Nebenkern.
30. Define Sertoli cells.
31. Define Spermache.

3 MARKS

1. Explain the role of FSH & LH in Spermatogenesis
2. What is Corpus Luteum?
3. What is menstrual cycle? Write down the various phases of menstrual cycle.
4. What are Braxton – Hick's Contraction?
5. What is Foetal ejection reflex or ferguson reflex?
6. Explain the role of oxytocin and relaxin parturition and lactation?
7. What is Capacitation?
8. Define PCOS.
9. Draw the structure of Sperm and label its parts.

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10. Define Colostrum.
11. Define 'Let Down Reflex'
12. Explain the term abdominal delivery or caesarian section or 'c' section.
13. Define Epiblast and Hypoblast
14. Write a short note on menstrual hygiene.
15. Define Cryptorchism.

5 MARKS

1. Describe the structure of Human Ovum with a neat labeled diagram.
2. Give a schematic representation of Spermatogenesis and oogenesis in humans.
3. Explain the various phases of menstrual cycle.
4. Explain the process of fertilization in human beings.
5. Write a brief note on Extra embryonic membrane.
6. Explain the various menstrual disorders.
7. Write a brief note on the major reproductive events in humans.

CHAPTER – III REPRODUCTIVE HEALTH

2 MARKS

1. Expand the following.
   a) ZIFT b) ICSI
2. What is PCPNDT act?
3. Define birth control.
4. What is the purpose of barrier method of contraception?
5. Define Saheli.
6. Define MTP.
7. Define Tubectomy and vasectomy.
8. Define Infertility.
9. Define POSCO Act.
10. What is cervical dysplasia?
11. Define surrogacy.
12. Write the preventive measure of STD's.
13. What is CVS?
14. What is foetoscope?
15. Define IUD's.

3 MARKS

1. What is Mayer-Rokitansky syndrome?
2. Write the various causes of infertility.
3. Write a short note on the different types of natural birth control method.

4. Mention the type of IUD's with example.
5. What is cryopreservation?
6. What is 'TESE'?
7. How will you detect the foetal disorders during the early stage of pregnancy?
8. What are STD's? Write down some of the viral STD's with symptoms.
9. Differentiate Foeticide and Infanticide.
10. Amniocentesis the foetal sex determination test, is banned in our country. Is it necessary? Comment.

5 MARKS

1. Describe the major STD's and their symptoms.
2. Explain the various barrier methods to control human population.
3. What is ART? Explain any two techniques of ART.
4. Explain about breast self-examination and early diagnosis of cancer.
5. Write a brief note on cervical cancer.

CHAPTER – IV PRINCIPLES OF INHERITANCE AND VARIATION

2 MARKS

1. What id Lyonisation?
2. What is criss-cross inheritance?
3. What are holandric genes?
4. What is male heterogamety?
5. What is female heterogamety?
6. Differentiate intersexes from supersexes.
7. What is Rh factor?
8. Mention two measures under negative eugenics.
9. What are Gynandromorphy?
10. What is euthenics?
11. Why are sex linked recessive characters more common in male human beings?
12. Define Universal donors and universal recipients.
13. Define karyotyping

3 MARKS

1. Distinguish between heterogametic and homogametic sex determination systems.
2. Explain the mode of sex determination in Honeybees.
3. How is sex determined in human beings?
4. Give an account of genetic control of Rh factor.
5. What are the applications of Karyotyping?

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6. What is extra chromosomal inheritance?
7. Comment on the method of Eugenics.
8. What is null allele?
9. Explain the condition Erythroblastosis foetalis.
10. What is pedigree analysis?
11. What are mendelian disorders?
12. What are kappa particles?
13. What is sex-switch gene?
14. Mention the symptoms of phenylketonuria.
15. Mention the symptoms of Down's syndrome.

5 MARKS

1. Explain the genetic basis of ABO blood grouping in man.
2. Explain criss-cross pattern of inheritance with an example.
3. Write a brief note on thalassemia.
4. Discuss the genic balance mechanism of sex determination with reference to *Drosophila*.
5. Write a brief note on chromosomal abnormalities.
6. Discuss the methods adopted for the improvement of human race.
7. Explain any 2 mendelian disorders occurring in human beings.

CHAPTER – V MOLECULAR GENETICS

2 MARKS

1. Give reasons: Genetic code is 'universal'.
2. Differentiate leading strand and lagging strand.
3. Differentiate template strand and coding strand.
4. HGP is the windows for treatment of various genetic disorders. Justify the statement.
5. Why the human genome project is called a mega project?
6. Define gene.
7. Differentiate Nucleoside and Nucleotide.
8. Define genophore.
9. Define histone octamere.
10. Distinguish between heterochromatin and euchromatin.
11. What is amino acylation?
12. How is the translation of mRNA terminated?
13. How do histones acquire positive charge?
14. What is central dogma? Who proposed it?
15. Differentiate exons and introns.
16. Define shotgun sequencing.
17. Define operon.

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18. Define genetic code.
19. State one gene – one polypeptide hypothesis.
20. State one gene – one enzyme hypothesis.
21. Differentiate Inducer and repressor in Lac operon
22. How does DNA polymorphism arise in a population?

3 MARKS

1. State any three goals of HGP.
2. Distinguish between structural gene, regulatory gene and operator gene.
3. Why tRNA is called an adapter molecule?
4. What are the three structural differences between RNA and DNA?
5. Write short notes on structure of the operon.
6. Discuss the significance of heavy isotope of nitrogen in the meselson and stahl's experiment.
7. List out the applications of DNA fingerprinting.
8. Write short notes on transformation principle in Griffith's Experiment.
9. Explain Wooble hypothesis.
10. List out the enzymes used in DNA replication.

5 MARKS

1. Explain the mechanism of replication.
2. Draw and explain the structure of tRNA.
3. Explain the process of transcription in prokaryotes.
4. Explain the process of transcription in eukaryotes.
5. Explain in detail about Lac operon model.
6. Write a brief note on DNA finger printing techniques.
7. List out the salient features of HGP.
8. List out the salient features of Genetic code.
9. Explain the formation of a nucleosome.
10. Explain Hershey and chase experiment on T_2 bacteriophage.

CHAPTER – VI EVOLUTION

2 MARKS

1. List out the major gases seems to be found in the primitive earth.
2. Define evolution.
3. Define coacervates.
4. Define the term protobionts.
5. Define fossilization.
6. What is petrifaction?
7. Define molecular evolution.
8. Define mutation theory.

9. Define adaptive radiation.
10. Define gene flow.
11. What is founder's effect?
12. Define connecting link with an example.
13. Why mesozoic era is known as 'Golden Age of Reptiles'?
14. Rearrange the descent in human evolution.
    Austrolopithecus → Homo erectus → Homo sapiens → Ramapithecus → Homo habilis.
15. Define 'Biogenetic Law'

3 MARKS

1. List out the features of Mutation theory.
2. Explain the three major categories in which fossilization occur.
3. Differentiate between divergent evolution and convergent evolution with one example each.
4. How did Darwin explain fitness of organisms?
5. Mention the main objections to Darwinism.
6. Who disproved Lamarck's theory of acquired characters? How?
7. List the two main propositions of Oparin and Haldane.
8. Write short notes on Urey and Miller experiment.
9. Write a brief note of Lamarck's theory.
10. Explain the term genetic drift.
11. Write down the basic five factors involved in the process of organic evolution.
12. How does Neanderthal man differ from the modern man in appearance?

5 MARKS

1. How does Hardy-Weinberg's expression ($p^2+2pq+q^2=1$) explain that genetic equilibrium is maintained in a population? List any four factors that can disturb the genetic equilibrium.
2. Define isolating mechanism and explain its types with suitable examples.
3. Explain the three level of impact of extinction of species.
4. Explain the various types of natural selection.
5. Darwin's finches and Australian marsupials are suitable examples of adaptive radiation – justify the statement.
6. Explain the process of Biological evolution.
7. Write a brief note on Darwin's theory.

CHAPTER – VII/VIII HUMAN HEALTH & DISEASES / IMMUNOLOGY

2 MARKS

1. What is Kala – azar?
2. Why do you think it is not possible to produce vaccine against 'common cold'?
3. Define Health.
4. List out some bacterial, virus and protozoan diseases.
5. Write down the symptoms of Dengue fever.
6. Define Poliomyelitis.

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7. Define helminthiasis.
8. Define ascariasis.
9. Define Immunology.
10. Name and explain the type of barriers which involve macrophages.
11. List out chemical alarm signals produced during inflammation.
12. Why is opsonisation efficient in phagocytosis?
13. What are the cells involved in innate immune system?
14. A person is infected by HIV. How will you diagnose for AIDS?
15. Define Haptens.
16. Define Adjuvants.
17. What is metastatis?
18. What is korsakoff syndrome?
19. Define allergy.
20. What is anaphylaxis?
21. Difference between epitope and paratope.
22. What are lymphoid organs?
23. Write down preventive measure for AIDS.
24. Why innate immunity is called as non-specific immunity?
25. What is immunotheraphy?
26. Define Dendritic cells.
27. Define percipitins.
28. Define haematopoiesis.

3 MARKS

1. Autoimmunity is a misdirected immune response. Justify.
2. Why is an antibody molecule represented as H_2L_2?
3. What is vaccine? What are its types?
4. What are interferons? Mention their role.
5. Classify viral disease based on their symptoms.
6. Difference between cancer cell and a normal cell.
7. Write short notes on Autoimmune diseases.
8. Draw the structure of HIV and label its parts.
9. Write down the functions of immunoglobulin.
10. Explain vaccination and immunization.
11. Suggest some ways to prevent drug and alcohol abuse.
12. List the common withdrawal symptoms of drugs and alcohol abuse.
13. Write short notes on Mental health and depression.
14. Write short notes on fungal diseases.

5 MARKS

1. Explain the lifecycle of Plasmodium in man.
2. Explain the structure of immunoglobulin with a neat labeled diagram.
3. Differentiate between
   a) Innate immunity and Acquired immunity

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b) Primary and Secondary immune responses
c) Active and Passive immunity
d) Humoral and CMI immunity
e) Autoimmune disease and Immunodeficiency disease.

4. Write a brief note on primary lymphoid organs.
5. Write a short note on
   a) Peyer's patches b) Tonsils c) Spleen
6. Write a brief note on lifestyle disorders.

CHAPTER – VIII / IX MICROBES IN HUMAN WELFARE

2 MARKS

1. Give any two bioactive molecules produced by microbes and state their uses.
2. When does antibiotic resistance develop?
3. What is referred as industrial alcohol?
4. What is bioremediation?
5. Define SCP.
6. Define LAB.
7. Define antibiotics.
8. What is bio – diesel?
9. What is cyclosporin – A?
10. Define weedicides.
11. Write any two advantages of bio fertilizers.
12. What is mycorrhiza?
13. Define 'super bug'.
14. Define COD and BOD
15. Define oenology
16. Define zymology.
17. Why penicillin is known as 'Queen of Antibiotics'?
18. Differentiate between Broad-spectrum and Narrow-spectrum antibiotics.
19. What is GEM?
20. Define methanogens.

3 MARKS

1. Write short notes on the following.
   a) Brewer's yeast b) Ideonella sakaiensis c) Microbial fuel cell
2. How is milk converted into curd? Explain the process of curd formation.
3. List the advantages of biogas plants in rural areas.
4. What is organic farming? List out the key features of organic farming.
5. What are the properties of an antibiotic?

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5 MARKS

1. Explain the process of sewage treatment.
2. Explain the process of Biogas production.
3. Explain Microbial Fuel Cell.
4. Write a short note on
   a) Statins b) Penicillin c) Trichoderma polysporum d) Streptokinase e) fermentation
5. List the useful microbes in household products with its functions.

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