

# DEPARTMENT OF ZOOLOGY

## QUESTION BANK - 2019-20

### SEMESTER-I, CORE-I (NONCHORDATE-I)

#### UNIT-I ,PART-I ( Each question carry 1 mark)

1. Paramecium belongs to which phylum?
2. Osmoregulation takes place in which phylum?
3. Which is known as temporary stomach of Amoeba?
4. Which is the locomotory organ of Amoeba?
5. Plasmodium belongs to which class?
6. In which process excretion takes place in protozoa ?
7. Which is the infective stage of plasmodium?
8. Which is the feeding stage of plasmodium?
9. What type of parasite is plasmodium?
10. what type of nutrition is seen in Euglena ?
11. Which is the the vector of plasmodium vivax ?
12. Which is the inflective stage of Entamoeba ?
13. which animal causes Amoebic dysentery?
14. Which animal causes cerebral malaria?
15. Chloroquine is used to treat for which disease?
16. Metronidazole is used to treat for which disease ?
17. Which type of nutrition is seen in Amoeba ?
18. Multiple fission is seen in which animal ?.

19. Which is the locomotory organ in Euglena ?
20. Which is the locomotory organ in Paramecium ?
21. Who is known as slipper animalcule ?
22. Canal system is seen in which phylum ?
23. Ostia present in which animal ?
24. Which type of spicules are seen in Porifera ?
25. Which is called freshwater sponge ?
26. what is diploblastic animal ?
27. what is amoebocytes ?
28. Sycon belongs to which class ?
29. what is name of body cavity of sponge ?

**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences)**

1. State three characters of kingdom protista .
2. Name different hosts of Plasmodium .
3. Name different hosts of Fasciola hepatica.
4. Name different hosts of Taenia solium .
5. Name different hosts of Wuchereria bancrofti .
6. What is the function of flagellum in Euglena ?
7. What is the function of trichocyst in paramecium ?
8. What is the function of food vacuole?
9. What is function of contractile vacuole ?
10. State 3 characters of class ciliates .
11. State 3 characters of Class sarcodina .

12. State 3 characters of Class sporozoa .

13. State 3 characters of Class flagellate .

14. What is pseudopodia?

15. What is canal system?

**PART-III (Each question carry 2 marks) (within 75 words )**

1.Protista

2.Porifera

3.Ciliate

4.Flagella

5.Pseudopodia

6.Contractile vacuole

7.Sporozoa

8.Sporozoite

9.Binary fission

10.Multiple fission

11.Conjugation

12.Amoebiasis

13.Trophozoite

14.Paramecium

15.Minuta form

**PART-IV (Each question carry 6 marks) (within 500 words )**

1.Describe the classification of Protista up to class .

2. Describe the life cycle of E. histolytica .

3. Describe the life cycle of *P. vivax* .
4. Describe the locomotion in Protista .
5. Describe the reproduction in Protista .
6. Describe the structural peculiarities of *Euglena* .
7. Describe the sexual reproduction in *P. vivax* .
8. Describe the asexual reproduction in *P. vivax* .
9. Describe the syconoid type of canal system .
10. Describe the leuconoid type of canal system .
11. Describe the classification of porifera up to class .
12. Describe the spicules in sponges .
13. Describe the structure of *Amoeba* .

**UNIT-II ,PART-I ( Each question carry 1 mark)**

1. What type of body symmetry present in Cnidaria ?
2. What is the name of the body cavity of Cnidaria ?
3. What is the name of the defensive and offensive cell of Cnidaria ?
4. What type of body wall has Cnidaria ?
5. Which peculiar adhesive cells present in the tentacles of Ctenophora ?
6. Which larva occurs in the life cycle of Ctenophora ?
7. Which is called Portuguese man of war ?
8. Polymorphism is seen in which phylum ?
9. *Obelia* belongs to which phylum ?
10. Which zooid of cnidarian acts as offence and defence organ ?
11. Which is the reproductive zooid ?

12. Which is the feeding zooid ?
13. Which is the defence zooid ?
14. What are two main types of zooids ?
15. Which is the sexual zooid ?

**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences)**

1. Write three characters of Cnidaria .
2. Write three characters of Ctenophor .
3. What is polymorphism ?
4. What is metagenesis ?
5. What is coral ?
6. What is coral reef ?
7. What is the function of dactylozooids ?
8. What is the function of gonozooids ?
9. What is medusa ?
10. What is polyps ?
11. What is nematocysts ?
12. What is colloblasts ?
13. Write three importance of coral .

**PART-III (Each question carry 2 marks) (within 75 words )**

1. Modification of polyps .
2. Modification of medusae .
3. Trimorphic polymorphism .
4. Origin of polymorphism .

- 5.Three types coral reef .
- 6.Solitary corals .
- 7.Dead mans finger .
- 8.Red coral .
- 9.Colonial corals .
- 10.Planula larva .
- 11.Importance of coral reef .
- 12.Atoll and Lagoon .
- 13.Cydippid larva .
- 14.Comb plates .
- 15.Bioluminescence in Ctenophora .

**PART-IV (Each question carry 6 marks) (within 500 words )**

- 1.Mention the general characters of Ctenophpra with its relationship with Coelenterata .
- 2.Classify Ctenophora with characters and discuss its affinities .
- 3.Describe the classification of Cnidaria upto class .
- 4.Describe the metagenesis in Obelia .
- 5.Describe polymorphism in Cnidaria .
- 6.Describe the structure of coral polyp .
- 7.Describe a corallite and how are corals formed .
- 8.Describe the structure of a fringing reef with diagram .
- 9.Describe various theories of formation of coral reefs .
- 10.Describe the importance of coral reefs and various threats to reefs .

11. Describe polymorphism in Cnidaria .
12. Describe different theories of reef formation .

**UNIT-III ,PART-I ( Each question carry 1 mark)**

1. Fasciola belongs to which phylum ?
2. Fasciola belongs to which class ?
3. What is other name of Fasciola ?
4. What is the shape of body of Fasciola ?
5. How many suckers has Fasciola ?
6. What is the name of external covering of Fasciola ?
7. What type of alimentary canal has Fasciola ?
8. What is the name of excretory organ of Fasciola ?
9. What type of parasite is Fasciola ?
10. What type of development seen in Fasciola ?
11. Taenia belongs to which phylum ?
12. Taenia belongs to which class ?
13. What is the common name of Taenia ?
14. What is the name of disease caused by Taenia ?
15. What type of parasite is Taenia ?
16. Which is dwelling place of Taenia ?
17. What is the name of head of Taenia ?
18. What is the name of body of Taenia ?
19. What is the name of segment of Taenia ?
20. Which is the excretory organ of Taenia ?

**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences)**

1. Write three characters of phylum Platyhelminthes .
2. Name different hosts of Fasciola .
3. Write different types of proglottids of Taenia .
4. Name different hosts of Taenia .
5. Write three characters of Cestoda .
6. Write preventive measures of Fascioliasis .
7. Write preventive measures of Taeniasis .
8. Write the names of larva of Fasciola .
9. Write the names of larva of Taenia .
10. Write about the scolex of Taenia .

**PART-III (Each question carry 2 marks) (within 75 words )**

1. Miracidium Larva
2. Sporocyst Larva
3. Redia Larva
4. Cercaria Larva
5. Metacercaria Larva
6. Flame cell
7. Male reproductive system of Fasciola
8. Female reproductive system of Fasciola
9. Proglottids
10. Male reproductive system of Taenia
11. Female reproductive system of Taenia



12.Hexacanth

13.Cysticercus larva

14.Gravid proglottid

15.Head of Taenia

**PART-IV (Each question carry 6 marks) (within 500 words )**

1.Describe the classification upto class of platyhelminths .

2.Describe the life cycle of Fasciola .

3. Describe the reproductive system of Fasciola .

4. Describe the structure of Fasciola and its adaptation .

5. Describe the reproductive system of Taenia .

6. Describe the life cycle of Taenia .

7.What is parasitism and describe parasitic adaptation in Platyhelminthes ?

8.Describe morphological adaptation in Platyhelminthes .

**UNIT-IV ,PART-I ( Each question carry 1 mark)**

1.Ascaris belongs to which phylum ?

2.Ascaris belongs to which class ?

3.Which type of parasite is Ascaris ?

4.Which is the dwelling place of Ascaris ?

5.What is the name of body cavity of Ascaris ?

6.What is the scientific name of round worm ?

7.Which disease is caused by round worm ?

8. What is the name of larva of round worm ?

9. What is the name of body cavity of round worm ?

10. Wuchereria belongs to which phylum ?
11. Wuchereria belongs to which class ?
12. Which type of parasite is Filaria?
13. Which is the dwelling place of Filaria ?
14. Which disease is caused by Filaria ?
15. What is the scientific name of Filaria worm ?
16. What is the name of larva of Filaria worm ?
17. Which is the infective stage of Filaria worm ?
18. Which is the vector of Filaria worm ?
19. What is the name of copulatory organ of Ascaris ?
20. Which is a pseudocoelomate animal ?

**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences)**

1. Write three characters of Nematohelminthes .
2. Write three symptoms of Ascaris .
3. Write three preventive measures of Ascaris .
4. Write three symptoms of Filaria .
5. Pathogenicity of Filaria .
6. Explain the mode of infection of Ascaris .
7. Why is Ascaris called a monogenetic parasite? .
8. Why fertilized egg of Ascaris do not develop further in human host ?
9. Why do Filaria exhibit nocturnal periodicity ?
10. Why is Filaria called a digenetic parasite ?
11. Differentiate male and female Ascaris .

**PART-III (Each question carry 2 marks) (within 75 words )**

- 1.Nematoda
- 2.Rhabditiform larva
- 3.Microfilariae larva
- 4.Male reproductive system of Ascaris
- 5.Female reproductive system of Ascaris
- 6.Excretory system of Ascaris
- 7.Pathogenicity of Ascaris
8. Pathogenicity of Filaria

**PART-IV (Each question carry 6 marks) (within 500 words )**

- 1.Describe the life cycle of Ascaris .
- 2.Describe the morphology of male and female Ascaris .
3. Describe the pathogenic effects of Ascaris in the human .
4. Describe the life cycle of Filaria .
5. Describe the development of Filaria in the mosquito .
6. Describe the pathogenic effects of Filaria in the human .
- 7.Describe the route of microfilariae in the human host .

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## **SEMESTER-I, CORE-II (PRINGIPLES OF ECOLOGY)**

### **UNIT-I ,PART-I ( Each question carry 1 mark)**

- 1.The living and nonliving things that interact in an environment is -----.
- 2.An organism that makes its own food is -----.
- 3.An organism that eats other organisms is called-----.
- 4.An animal that eats other animals is known as -----.
- 5.An organism that breaks down dead plant and animal material is called-----.
6. -----shows how food chains are linked together.
- 7.-----shows how energy passes from one organism to another in an ecosystem.
8. An animal that eats plants is called -----.
- 9.An animal that eats both plants and animals is called -----.
- 10.Food chains begin with-----that make their own food.
- 11.Nutrients from dead organisms are recycled by-----.
- 12.Food chain and food web is made up of which level?
- 13.Each stage in food chain is called a what ?
- 14.Detritus is eaten by whom?
15. What is called to A debris from rotting matter?
- 16.A food chain starts with a whom?
- 17.According to pyramid of numbers number of producer is greater than number of what?
18. There occurs diminishing along food chain in amount of which part ?
- 19.A network of interconnected food chains is known as -----.

20. Which example is Plants → Caterpillar →→ birds ?

21. Who is the father of ecology ?

22. Who coined the term Autecology?

**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences)**

1. What is ecology ?

2. What is food chain ?

3. What is food web ?

4. What are food webs give an example

5. What are the biogeochemical cycles and why are they important?

6. What are examples of biogeochemical cycles?

7.. Is food a limiting factor for plants?

8. What are examples of limiting factors?

9. What are some physical factors?

10. What is trophic level ?

11. What are examples of ecology?

12. What is importance of ecology ?

13. What are the two types of ecology?

14. What is Synecology and Autecology ?

15. What is Synecology in biology?

16. What is called a food chain ?

17. What dose detritus food chain ?

18. What is grazer food chain ?

**PART-III (Each question carry 2 marks) (within 75 words )**

1. What is Autecology describe its various aspects?
2. What is the difference between Synecology and Autecology ?
3. What are the 4 types of ecosystems?
4. Grassland ecosystem.
5. What are the aim of ecology?
6. Distinguish between temporary and permanent ecosystem.
7. Distinguish between artificial and natural ecosystem.
8. What are the basic steps of energy flow in ecosystem?
9. What is single channel energy flow model?
10. Write significance of biogeochemical cycle?
11. Describe nitrogen fixation?
12. Distinguish between nitrification and denitrification.
13. Write notes on limiting factors.
14. Write notes on shelford's law of tolerance.
15. Define photoperiodism.
16. Define cyclomorphosis.
17. Define endangered species.
18. Define vulnerable species.
19. Write values of wildlife.
20. Define biodiversity.

**PART-IV (Each question carry 6 marks) (within 500 words )**

- 1. Describe the structural and functional component of ecosystems.**
- 2. Describe pond as an ecosystem.**
- 3. Describe energy flow in ecosystem.**
- 4. Describe light as ecological factor.**
- 5. Describe temperature as ecological factors.**
- 6. Describe wildlife conservation and management process.**
- 7. What is biogeochemical cycle? Describe nitrogen cycle .**
- 8. Describe the role of limiting factors in ecology.**
- 9. Discuss the basic feature of energy flow in an ecosystem with the help of proper models.**
- 10. Describe in brief the different types of natural ecosystem found over the planet earth.**

**UNIT-II ,PART-I ( Each question carry 1 mark)**

- 1.The collection of individuals which belongs to the same species when live together in a region is known as -----.
2. The size of the population is represented by the property called -----.
- 3.The ability of the individual in the population to produce new individuals is known as -----.
4. A group of people coexist within space and time and interact with each other is known as -----.
5. Which one is the most significant feature of the Indian population?
- 6.What is Sex ratio?
- 7.What was the population density of India according to 2001?

8. A large proportion of children in a population is a result of:
9. Which is the most populous country of the world?
10. The number of people in different age groups is referred as:
11. What are the following factors responsible for sparse population?
12. In how many years is the official enumeration of population carried out for census.
13. Which of the following is an important social indicator to measure the extent of equality between males and females in a society at a given time?

**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences)**

1. What is natality ?
2. What is Realised Natality?
3. What is density ?
4. What is dispersal ?
5. What causes dispersal?
6. What is dispersion ?

Ans. Dispersion is defined as the breaking up or scattering of something.

8. What is an example of a dispersion?
9. What is population ?
10. What is an example of competitive exclusion ?
11. What are the two types of population?
12. What is density of population ?
13. How does Natality affect population?



14. What is difference between natality and mortality?

**PART-III (Each question carry 2 marks) (within 75 words )**

1. Intraspecific and Interspecific relationship.

2. Parasite and Predator.

3. Temporary and permanent aggregation.

4. Home range and territoriality.

5. Obligatory parasite and facultative parasite.

6. Functional response and numerical response.

7. Scramble competition and contest competition.

8. Aggregation

9. Altruism

10. Dominance hierarchies

11. Chemical signals

12. Parasitoids

13. Character displacement .

**PART-IV (Each question carry 6 marks) (within 500 words )**

1. What is density of population ? How is it calculated explain with example?

2. What is biotic interaction? Describe the positive interaction among species.

3. Define competition? What are the different types of competition ? How does interspecific competition take place? Comment on its results.

4. What is predation? Discuss the dynamics of predator prey relationships and add a note on factors which determine the prey risks.

5. Define parasitism. What are the adaptations for the parasitic mode of life? List down the mechanisms of infection and add a note on the effect of parasites on hosts.

6. What is meant by communication between animals? What are the essential components of communication? Describe the different methods by which animals communicate with one another.

### **UNIT-III ,PART-I ( Each question carry 1 mark)**

1. Species that are responsible for making characteristics of community are called-

2. Community is aggregation of -----.

3. A group of several species living together which mutual conference or adjustment and beneficial interactions in a natural area is known as -----.

4. Climax community is -----.

5. Dominant species represents most abundant -----.

6. Series of changes on previously Barren area is -----.

7. A climax community is recognized by -----.

8. Species of a biological community that has higher abundance, height, cover and Biomass is called -----.

9. The phenomenon of occurrence of additional species found in the ecotone or transitional zone between adjoining ecosystems is known as -----.

10. The final stable community in an ecological succession is called -----.

11. How many types of ecological succession are there?

12. What is called for the term used to express a community in its final stage of succession?

13. What is called for the term in which all the living organisms that occupy an area primary succession in the beginning stages?

14. What is called for the process when older communities of plants and animals are replaced by newer communities?

15. Which process occurs after a volcanic eruption ?

16. After landslide which type of succession occurs?

17. What is Succession ?

18. What is ecotone ?

19. In an ecotone, the species which become abundant are called what ?

**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences)**

1. How is species richness calculated ?

2. Where is species richness greatest?

3. What is dominance ?

4. What is abundance in life?

5. What is diversity ?

6. What are examples of diversity?

7. What is stratification in biology?

8. What is an ecotone example?

9. What is edge effect?

10. What is an example of ecological succession?

11. What is a community?

12. What are the 3 types of community?

13. What are the types of community?

14. What is a good community?

15. What is species richness and diversity?

**PART-III (Each question carry 2 marks) (within 75 words )**

1. Presere and Subsere

2. Autogenic and allogenic succession

3. Coaction and reaction

4. Explain the changes that takes place in ecosystem structure during the process of succession .

5. Explain the significance of succession from the view point of wildlife conservation.

6. Distinguish between monoclimax and polyclimax theories of succession.

7. What are the main propositions of the polyclimatic climax theory ?

8. Comments on the trends of succession in ecosystem .

**PART-IV (Each question carry 6 marks) (within 500 words )**

1. What is succession ? What are the causes of succession ? Give a detailed account of the general process of succession.

2. Giving suitable diagram explain the process of succession as it takes place in a pond.

3. What is climax community? Write briefly about the theories that have been forwarded to explain the concept of climax.

4. What is meant by ecotone and edge effect? Describe the different types of ecotones and comment on the significance of ecotone concept.

5. Explain the different schemes of classification of ecotones. Comment on the relationship between ecotones and species diversity.

**UNIT-IV ,PART-I ( Each question carry 1 mark)**

- 1.Method used to compute average or central value of collected data is considered as -----.
- 2.If positive square root is taken of population variance then calculated measure is transformed into -----.
- 3.If quartile range is 24 then quartile deviation is -----.
4. Most frequent observation in a data set is called -----.
5. Sum of deviations of values from their mean is always -----.
6. Average of all observations in a set of data is known as -----.
7. A statement about a population developed for the purpose of testing is called --
8. In systematic sampling, value of k is classified as -----.
- 9.If a researcher takes a large enough sample, he/she will almost always obtain:
- 10.The null and alternative hypotheses divide all possibilities into:
11. Which of the following is true of the null and alternative hypotheses?
12. One-tailed alternatives are phrased in terms of:
13. The chi-square goodness-of-fit test can be used to test for:
- 14.A type II error occurs when:
- 15.Of type I and type II error, which is traditionally regarded as more serious

**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences)**

- 1.What is mean?
- 2.What is median?

3. What is mode ?
4. What is central tendency ?
5. What is the meaning of sampling techniques ?
6. What is a frequency polygon ?
7. Why is it called a frequency polygon?
8. What is histogram ?
9. What is a histogram example?
10. What is the use of quartile deviation?

**PART-III (Each question carry 2 marks) (within 75 words )**

1. What do you mean by biometry ?
2. What is biological data mining?
3. How can you classify biological database?
4. What is a frequency polygon definition?
5. Why is it called a frequency polygon ?
6. What frequency polygon and frequency curve?
7. What are histograms used for?
8. What is histogram and example?
9. What is the difference between a histogram and a bar graph?
10. How are histograms used in real life?
11. What is the importance of histogram?
12. What is the meaning of sampling techniques ?
13. What are the 4 types of sampling methods?

14. How do you write a sampling technique?

15. What are the two types of sampling techniques?

**PART-IV (Each question carry 6 marks) (within 500 words )**

1. What is standard deviation? How is it calculated? In what way does standard deviation differ from mean deviation? Mention the merits and demerits of standard deviation?

2. The body weight of 16 Rohu fishes is given below. Find out the mean and standard deviation?

3525,4710,2945,4206,3659,3872,3093,3315,4319,3724,4152,3280,3465,4540,  
4070 ( S.D = 531.956)

3. Define student t-test .What are the assumption inherent to the test ? Explain the test with suitable examples .

4. What do you mean by students t-test ? Mention the formula to obtain the 't' ratio . Explain degree of freedom and mention its application .

5. What is Chi square test ? Mention its characteristics. Write a note on the applications of Chi square test and a note on the prerequisite conditions for the application of the test .

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## **Semester- II ,CORE-III (NON-CHORDATES-II)**

### **UNIT-I, Part-I (Each question carry 01 mark )**

- 1.Segmented worms belongs to which phylum ?
- 2.what is linear repetition of similar body parts of annelids ?
- 3.What is called outer most covering of body of annelids ?
- 4.Which type of blood vascular system is seen in annelids ?
- 5.Which is the locomotory organ in annelids ?
- 6.What type of digestion seen in annelids ?
- 7.Which respiratory pigment present in blood of annelids ?
- 8.Which is Excretory organ in annelids ?
- 9.Trochophore larva is seen in which phylum ?
- 10.Earthworm belongs to which phylum ?
- 11.Leech belongs to which phylum ?
- 12.Aphorite belongs to which class ?
- 13.Earthworms belongs to which class ?
- 14.Leech belongs to which class ?
- 15.What type of Coelom is present in annelids ?

### **Part-II (Each question carry 1.5 mark )(within 2 to 3 sentence)**

- 1.Define annelida .
- 2.Define coelom .
- 3.Define excretion .
- 4.Define metamerism .



5. Write different type of metamerism .

6. What is origin of metamerism ?

7. What is protonephridia ?

8. What is metanephridia ?

9. What is pharyngeal nephridia ?

10. What is septal nephridia ?

11. What is integumentary ?

**Part-III (Each question carry 02 mark )(within 75 words)**

1. General character of phylum annelida .

2. Significance of coelom .

3. Different theories of origin of metamerism .

4. Different types of metamerism .

5. Significance of metamerism .

6. Significance of coelom .

7. Different theory for coelom formation .

8. Origin & evolution of coelom .

9. Different types of coelom .

10. Physiology of nephridium .

**Part-IV (Each question carry 06 mark )(within 500 words)**

1. Describe classification upto class in annelids .

2. What is coelom? Give an account of coelom in annelids ?

3. Give an account of origin & evolution of coelom in annelids .

- 4.What is metamerism? Give an account of metamerism in annelids ?
- 5.Give an account of origin & evolution of metamerism in annelids .
- 6.Give an account of excretion in annelid.
- 7.Give an account of different types of nephridia in annelids .

**UNIT-II ,Part-I (Each question carry 01 mark )**

- 1.Haemocoelom animals belongs to which phylum?
- 2.Animals having segmented appendages belongs to which phylum ?
- 3.Which is the largest phylum of invertebrate groups ?
- 4.Compound eyes are seen in which phylum ?
- 5.Which is the locomotory organ in arthropods ?
- 6.Which is the excretory organ in arthropods ?
- 7.Which is the respiratory organ in arthropods ?
- 8.What type of coelom is seen in arthropods ?
- 9.What is the body covering of arthropods ?
- 10.What type of eye present in arthropods?

**Part-II (Each question carry 1.5 mark )(within 2/3 sentence)**

- 1.What is mosaic vision ?
- 2.What is super position image ?
- 3.What is apposition image ?
- 4.What is haemocoel ?
- 5.Define arthropoda .
6. Define metamorphosis .

7. Define social insect .
8. What is swarming ?
9. What is moulting ?
10. What is ecdysis ?
11. What is pupa ?
12. What are the two type of vision in insects ?
13. What are three types of respiratory system seen in arthropoda ?
14. Why onychophora is called a living fossil ?
15. What is the habit and habitat of onychophora ?

**Part-III (Each question carry 2 marks )(within 75 words)**

1. Explain importance of mosaic vision .
2. What are four types of metamorphosis in insects ?
3. Explain respiration in arthropoda .
4. Explain social life of honey bee .
5. State general characters of onychophora .
6. Explain social life of termite .
7. Explain evolutionary significance of onychophora .
8. Explain significance of metamorphosis .
9. Explain simple eye and compound eye .
10. State general characters of arthropoda .

**Part-IV (Each question carry 06 mark )(within 500 words)**

1. Describe the classification of arthropoda upto class .

2. Describe the vision in arthropoda .
3. Describe the respiration in arthropoda .
4. Describe the various types of metamorphosis in insects .
5. Describe social life in honey bee .
6. Describe social life in termites .
7. Describe evolutionary significance of onychophora .
8. Describe structural peculiarities of peripatus .

**UNIT-III ,Part-I (Each question carry 01 mark )**

1. Soft body animals belongs to which phylum ?
2. Which larva seen in Mollusca ?
3. What is respiratory organ in Mollusca ?
4. What is scientific name of snail ?
5. What type of body has Mollusca ?
6. Which Mollusca are most common ?
7. What defines phylum Mollusca ?
8. What is the name of body covering of Mollusca ?
9. What is the degree of rotation in torsion ?
10. Snail belongs to which phylum ?

**Part-II (Each question carry 1.5 mark )(within 2/3 sentence)**

1. Define Mollusca .
2. Define torsion .
3. Define detorsion .

4.What is the evolutionary origin of Mollusca ?

5.What are different body parts of Mollusca ?

**Part-III (Each question carry 2 marks )(within 75 words)**

1.State general characters of phylum Mollusca .

2.Write importance of torsion in Mollusca .

3.Write importance of detorsion in Mollusca .

4.Write respiration in Mollusca .

5.Write evolutionary significance of trocophore larva .

**Part-IV (Each question carry 06 mark )(within 500 words)**

1.Classify Mollusca upto class .

2.Describe respiration in Mollusca .

3. Describe torsion and detorsion in gastropoda .

4. Describe evolutionary significance of trocophore larva .

**UNIT-IV, Part-I (Each question carry 01 mark )**

1.Star fish belongs to which phylum ?

2. calcareous plate present on the aboral surface of Star fish .

3.The wall of stone canal shows which type of ridge ?

4.Which irregular bodies present on the ring canal ?

5. Which is the locomotory organ of Asteroidea ?

6.Bipinnaria belongs to which class ?

7.Echinopluteus belongs to which class ?

8.What is the other name of Doliolaria larva ?

9. Madreporite opens to which canal ?

10. Water vascular system is found in which phylum?

**Part-II (Each question carry 1.5 mark )(within 2/3 sentence)**

1. Madreporite

2. Stone canal

3. Ring canal

4. Polian vesicle

5. Tiedemann's bodies

6. Radial canal

7. Lateral canal

8. Tube feet

9. Define water vascular system.

10. Define deuterostome.

**Part-III (Each question carry 2 marks )(within 75 words)**

1. Bipinnaria larva

2. Dolliolaria larva

3. Ophiopluteus larva

4. Echinopluteus larva

5. Auricularia larva

6. Significance of Echinodermata larva

7. Pentacula theory

8. Dipleural concept

9. Affinities of echinoderm with chordates

10. Write important characters of phylum Echinodermata.

**Part-IV (Each question carry 06 mark )(within 500 words)**

1. Describe classification of phylum Echinodermata upto class.

2. Describe the water vascular system in Astroidea.

3. Describe the larval form of Echinodermata.

4. Describe the evolutionary significance of in Echinodermata.

5. Describe the working mechanism and function of water vascular system in Astroidea.

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**Semester- II,Zoology- core- 4( cell biology)**

**UNIT-I ,Part-I (Each question carry one mark)**

1. Who proposed cell theory?
2. Who first studied the unicellular microscopic organism?
3. Who described protoplasm of cell?
4. Who discovered prion?
5. Who describe fluid mosaic model of plasma membrane?
6. Which type of gap junction are found in plant?
7. Who suggested unit membrane concept of plasma membrane?
8. Who referred protoplasm as the " physical basis of life" ?
9. What is the alternative name of gap junction?
10. Cyanobacteria belongs to which type of cell?
11. Lipid bilayer model of plasma membrane was discovered by.....
12. Who discovered unit membrane model of plasma membrane?
13. Who discovered sandwich model of plasma membrane?
14. The process by which solid substance pass into cell is known as.....
15. Which cell contain primitive nucleus?
16. Which cell contain true nucleus?
17. Cell wall of two adjacent cell are connected by.....
18. Which ions regulate the permeability of gap junction channels?
19. Which is called living material of cell?
20. Who described protoplasm theory?



**PART-II (Each question carry 1.5 mark) (within 2 to 3 sentences )**

1. Define prokaryotes.
2. Define eukaryotes.
3. What is mycoplasma?
4. What is viroid?
5. What is prions?
6. What is unit membrane?
7. Define intrinsic protein .
8. Define extrinsic protein.
9. What is micelle?
10. What is active transport?
11. What is passive transport?
12. Define simple diffusion.
13. Define cell junction.
14. What is plasmodesmata?
15. What is voltage gated ion channel?
16. What are bacterial appendages?
17. What is sodium potassium channel?
18. What are ABC transporter?
19. Define isotonic solution.
20. Define hypotonic solution.

**Part-III (Each question carry 2 mark) (within 75 words )**

1. What is cell theory?
2. What is micellar model?
3. Discuss significance of plasmodesmata.
4. What are occluding junction?
5. Define gram positive bacteria.
6. Define gram negative bacteria.
7. What is sandwich model of plasma membrane?
8. Function of plasma membrane.
9. Composition of plasma membrane.
10. Reproduction in bacteria.
11. Replication in virus.
12. Characteristics of prokaryotic cell.
13. Characteristics of eukaryotic cell.

**Part-IV (Each question carry 6 marks) (within 500 words )**

1. Describe structure and function of plasma membrane.
2. Describe the structural component of prokaryotic cell.
3. Describe the structural component of eukaryotic cell.
4. Describe different types of active transport.
5. Describe different type of cell junction.

**UNIT-II , Part-I (Each question carry one mark )**

1. What are the thickest tubular components of cytoskeleton ?
2. What is the diameter of microtubules ?

- 3.What are the two types of proteins in protofilaments of microtubules ?
- 4.What is the largest cellular organelle in animal cells ?
- 5.Which is the thinnest fibres of cytoskeleton ?
- 6.What type of fiber present in microfilaments ?
- 7.What is the name of network of cytoskeleton ?
- 8.Which is the Ca-binding protein in protofilaments ?
- 9.Which type of ER is comparatively more stable ?
- 10.Which cell of mammals has no ER ?
- 11.Who separates the nucleus from the cytoplasm ?
- 12.Who is regarded as suicidal bag of the cell ?
- 13.Who first isolated lysosomes ?
- 14.Which cytoplasmic organelles have high content of acid and other enzymes ?
- 15.What is the name of dilated edges of Golgi components ?
- 16.Who introduced the term mitochondria ?
- 17.Who is the power house of the cell ?
- 18.Who is the center for cellular respiration ?
- 19.What is the name of energy coin ?
- 20.What are the different types of ER ?

**Part-II ,(Each question carry 1.5 marks )(within 2/3 sentences )**

- 1.What is protofilament component of cytoskeleton ?
- 2.Give examples of intermediate filaments .
- 3.What is endosomes ?

4. What is nuclear matrix ?
5. What is nucleoplasm ?
6. What is oxysomes ?
7. What is mitochondrial DNA ?
8. Which is the site of aerobic respiration ?

**Part-III ,(Each question carry 2 marks )(within 75 words )**

1. Differentiate between rough and smooth ER.
2. Discuss the pathway of acrosome formation in maturation of sperm.
3. Discuss the current models of vesicular transport and trafficking.
4. Describe the functions of lysosome.
5. Give a brief account of size, shape number and distribution of mitochondria.
6. Describe the modern view on the electron transport system and oxidative phosphorylation in mitochondria.
7. What is Chemical Coupling Hypothesis ?
8. Why mitochondria are regarded as semi autonomous cell organelles?

**Part-IV ,(Each question carry 6 marks )(within 500 words)**

1. Describe the structure, types and functions of endoplasmic reticulum.
2. Discuss the structure and functions of Golgi apparatus.
3. Describe the various types of transport vesicles with examples.
4. Give an account of structure and functions of lysosomes.
5. Describe the ultra-structure of mitochondria with suitable diagrams.
6. Describe the functions of mitochondria.

7.Explain the mechanism of Chemiosmotic coupling hypothesis in favour of ATP production.

8.What is endosymbiotic hypothesis? What are the evidences in support of Endosymbiotic Hypothesis?

**UNIT-III,Part-I (Each question carry one mark )**

1.What are the thickest tubular components of cytoskeleton?

2.What is the diameter of microtubules?

3.What are the two types of proteins present in protofilaments of microtubules?

4.What is the largest cellular organelle in animal cells?

5.Who first discovered nucleolus?

6.The thinnest fibres of cytoskeleton are called .....

7.The network of cytoskeleton known as ..... becomes denser towards the nucleus and then the fibres radiate towards the surface.

8.Microfilaments, consisting of ..... fibres, were found crisscrossing the cell outline.

9. .... is the Ca-binding protein in protofilaments.

10.Early microscopist ..... observed a 'lumen', thenucleus, in the red Blood cells of salmon.

11.The nuclear ..... separates the nucleus from the cytoplasm.

**Part-II (Each question carry 1.5 mark )(within 2/3 sentences)**

- 1.What is protofilament component cytoskeleton?
- 2.Give examples of intermediate filaments.
- 3.What are 'endosomes' ?
- 4.What is nuclear matrix ?
- 5.What is nucleoplasm ?

**Part-III (Each question carry 2 mark ) (within 75 words)**

- 1.Microtubule Orgsnization Centre (MTOC).
- 2.Structural details of microfilaments.
- 3.Nuclear pore complex.
- 4.Nucleosome.
- 5.Chromatin .

**Part-IV (Each question carry 6 mark )(within 500 words)**

- 1.What are the various components of cytoskeleton ? Describe their structure and function?
- 2.Give an account of chromosomal DNA and its packaging.
- 3.Briefly explain the structure and functions of nucleus.
4. Describe the structure and function of lysosomes.
5. Describe the structure and function of Golgi apparatus.
6. Describe the structure and function of endoplasmic reticulum.

**UNIT-IV, Part-I (Each question carry one mark )**

- 1.What are the proteins that drive the progression from one step of the cell cycle to the next are a series of protein complexes composed of ?

2. What is prevented due to spindle assembly checkpoint?
3. What is the name of an important checkpoint in G<sub>1</sub> which has been identified in mammalian cell?
4. What is commonly referred to as a Mitosis Promoting Factor (MPF) ?
5. In which type of cell division the number of chromosomes in the daughter cells is reduced by half to produce haploid gametes?
6. Who were the first to study cell division during the cleavage of zygote of frog?
7. Which type of cell division meets normal wear and tear of the individual?
8. At which stage of mitosis, the nuclear envelope breaks down and nucleolus disappears?
9. Which type of daughter chromosome appears V-shaped during anaphase?
10. What type of mitosis is found in plants in which spindle has no aster?
11. Which type of nuclear division produces random assortment of chromosomes. Resulting in production of a large number of variations?
12. Which sub-stage of prophase I is called as thin thread stage?
13. What is the third type of division where the nucleus elongates, constricts in the middle and divides directly into two daughter nuclei?
14. There is a very brief interphase between meiosis I and meiosis II. There is no DNA replication i.e. .... is absent.
15. What are the vast networks of communication between and within each cell in our body?
16. For a typical rapidly proliferating human cell in culture with a total cycle time of approximately 24 hours. The G<sub>1</sub> phase might last about ..... hour, S phase about.....hours, G<sub>2</sub> about ..... Hours and M about ..... hours.

17. Cyclin-dependent protein kinases (CDKs) constitute a family of functionally related protein kinases which are enzymes that add ..... groups to target substrates.

18. Prokaryotes (bacteria) undergo a vegetative cell division known as .....

19..... Is the synonym for equational division.

20. Microtubules from each centrosome connect to specialized regions in the centromere called .....

21. The division of the nucleus is referred to as .....

22 ..... mitosis is found in animals in which spindle has two asters, one at each pole.

23. When a cell grows in size, ratio decreases but is restored by mitosis?

24. The synonym of ..... is reductional division or dis-junctional division.

25. The nuclear division that forms haploid cells is called .....

26. Pairing of homologous chromosomes takes place in a zipper-like manner during ..... sub-stage of prophase I;

27. During ..... Sub-stage of prophase I the chiasmata are almost fully terminal chiasma.

28..... proposed "omnis cellula" and "cell lineage theory",.

29. Doubling of chromosome number without cytokinesis by the application of alkaloid colchicine is known as .....

30. Which is known as brain of cell?

**Part-II (Each question carry 1.5 mark )(within 2/3 sentences)**

1. What is G<sub>0</sub> phase?

2. What is cyclin?



3. What is m-cdk?
4. What is cell cycle check point?
5. What is crossing over?
6. What is synapsis?
7. Define cell cycle.
8. What is receptor?
9. What is cell surface receptor?
10. What is cytosolic receptor?
11. What is heterochromatin?
12. What is euchromatin?
13. What is GPCR?
14. Define Camp.
15. What is chiasmata?
16. What are the factors that control mitosis?
17. What is synaptonemal complex?
18. What is G-protein?
19. What is amitosis?
20. Write significance of mitosis.

**Part-III (Each question carry 02 mark )(within 75 words)**

1. What are cell cycle checkpoints?
2. What is the role of Rb protein in cell cycle regulation?
3. What is the role of p53 protein in cell cycle regulation?

4. Describe the significance of meiosis.
5. What are the function of signaling molecules?
6. What are second messenger?
7. Describe the characteristics of amitosis.
8. Write characters of prophase.
9. What are the different phases of cell cycle?
10. What is paracrine signaling?
11. What is endocrine signaling?
12. What are extracellular signaling?
13. What are G-protein receptor?
14. Write the structure of G-protein receptor.

**Part-IV (Each question carry 6 mark )(within 500 words)**

1. Describe the events of cell cycle .
2. Describe the process of mitosis .
3. Describe the process of meiosis .
4. Differentiate between mitosis and meiosis .
5. Describe the various type of transmembrane receptor and their functional mechanism .
6. Describe various type of signaling molecules .
7. Describe structure and function of nucleus .
8. Describe the various type of cell cycle check point .
9. Describe the packaging of chromosome .
10. Describe the structure and function of nucleolus .

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