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D. P. Bhosale College, Koregaon

B.Sc. Part III Semester VI

Paper XIII: Developmental Biology of Vertebrates

Question Bank

Multiple Choice Questions

1) The process of realizing the ripe female gamete from the ovary is called …….

a) Parturition b) Ovulation c) Fertilization d) Implantation

2) The process of Conservation of spermatids into sperms is …….……

a) Spermiogenesis b) Spermatogenesis c) Gametogenesis d) Metamorphosis

3) This helps in the penetration of the egg by the sperm ……

a) fertilization membrane b) Antifertilizin c) sperm lysin d) fertilizin

4) The region of frog blastula on the dorsal side near grey crescent in the equatorial belt will develop as ……

a) Fore gut b)Brain c) Notochord d) somite

5) Blastopore in frog can be seen in ..... stage.

a) Cleavage b) Morula c) Blastula d) Gastrula

6) White yolk beneath the blastodisc in chick egg is ……

a) Latebra b) Nucleus of pender

c) Neck of latebra d) Germinal disc

7) The center of Hensen's node has a funnel shaped depression is called….

a) Primitive pit b) Primitive groove

c) Primitive fold d) Primitive fold

8) Zonary placenta, villi are arranged one or more circles, found in ----------

a) Sheep b) Camel c) Dog d) Pig

9) The breakage of the membrane surrounding the acrosome in mammalian sperm is …….

a) Activation b) Cavitation c) Agglutination d) Capacitation

10) .....are called as sperm mother cells

a) Spermatids b) Spermatogonia

c) Spermatocyte d) Primordial Germ Cells

11) Heart and major blood vessels are derived from……..

a) Endoderm b) somatic mesoderm

c) Splanchnic mesoderm d) Intermediate mesoderm

12) Blastopore in frog can be seen in..... stage.

a) Cleavage b) Morula c) Blastula d) Gastrula

13) Hormone plays important role in metamorphosis of frog.

a) Epinephrin b) Norepinephrine

c) Thyroxine d) Growth hormone

14) White yolk beneath the blastodisc in chick egg is ……

a) Latebra b) Nucleus of pender

c) Neck of latebra d) Germinal disc

15) In eutherian mammals contains.....placenta.

a) Chorio-Allantois b) Yolk-sac c) Both of these d) None of these

16) The larval stage of frog is called as.....

a) Tadpole b) Caterpillar c) Larva d) None of this

17) Eggs containing enormous quantities of yolk are called as …….

a) Microlecithal egg b) Mesolecithal egg c) Macrolecithal egg d) Alecithal egg

18) Sperm(s) acrosomes has ……...

a) Hyaluronic acid & proacrosine b) Hyaluronic acid & fertilizin

c) Hyaluronidase & proacrosin d) Fertilizin & proacrosin

19) Sperm of frog is a haploid..... cell.

a) Flagellated b) Amoeboid c) Ciliated d) Immotile

20) Area of ectoderm near presumptive chorda mesoderm is presumptive …….. in frog fate map.

a) Notochord b) Prechordal plate c) Neuroectoderm d) Fore gut

21) Heart and major blood vessels are derived from……..

a) Endoderm b) somatic mesoderm

c) Splanchnic mesoderm d) Intermediate mesoderm

22) hormone plays important role in metamorphosis of frog

a) Epinephrin b) Norepinephrine

c) Thyroxine d) Growth hormone

23) At the time of laying the chick embryo is in ….

a) 2 cell stage b) Early blastula stage

c) Morula stage d) Early gastrula stage

24) The invagination & involution are examples of ……

a) Mesoboly b) Epiboly c) Emboly d) None of these

25) Germ cells in mammalian gonads are produced by ……..

a) Only mitosis b) Only meiosis

c) Mitosis & meiosis both d) Without cell division

26) Acrosomes of sperm is formed from ...…….

a) Nucleus of spermatid b) Mitochondria of spermatid

c) Golgi complex of spermatid d) Centrosomes of spermatid

27) Egg of frog is of .....type.

a) Isolacithal and mesolecithal b) Telolecithal and mesolecithal

c) Telolecithal and microlecithal d) Isolecithal and megalecithal.

28) Gastrulation in frog begins at ……

a) Grey crescent b) Below the grey crescent

c) Animal pole d) Vegetal pole5

29) At the broad end of the shell membrane enclose

a) Excretory space b) Circulatory space

c) Air space d) Nutritive space

30) Heart and major blood vessels are derived from……..

a) Endoderm b) Somatic mesoderm

c) Splanchnic mesoderm d) Intermediate mesoderm

31) Body of chick embryo proper is formed by……

a) Area opeca b) Nucleus of pender

c) Latebra d) Area pellucida

32) In chick the incubation period is……

a) 14 days b) 21 days

c) 28 days d) 35 days

33) Non-cleidoic eggs are found in the …….

a) Pisces b) Amphibians c) Reptiles d) Aves

34) Germ cells in mammalian gonads are produced by ……..

a) Only mitosis b) Only meiosis

c) Mitosis & meiosis both d) Without cell division

35) Blastula of frog is called as.....

a) Coeloblastula b) Blastocyst c) Disco blastula d) None of this

36) After entry of sperm into egg, the Vitelline membrane is converted into.....

a) Plasma membrane b) Zona pellicuda

c) Fertilization membrane d) Zona radiata

37) The invagination & involution are examples of.....

a) Mesoboly b) Epiboly c) Emboly d) None of this

38) Blastodisc is united with the yolk mass by….....

a) Epiblast b) Endoblast c) Periblast d)Mesoblast

39) Implantation takes place .....duration

a) 2 to 8 days b) 4 to 8 days c) 5 to 10 days d) 7 to 14 days

40) In sheep.....placenta is present.

a) Endotheliochorial b) Syndesmochorial c) Haemochorial d) Epitheliochorial

Long Answer Questions

1. What is Cleavage? Explain the types of cleavage seen in the eggs of frog.
2. Describe the process of Gastrulation in Frog.
3. Describe Fertilization and give the significance of fertilization
4. Describe the structure of blastula in a frog and the fate map of the frog blastula
5. What is Foetal membrane? Describe their formation and function in chick.
6. Explain the Mechanism of Fertilization?
7. Describe the process of neurulation in frogs.
8. Describe the development of notogenesis and neurogenesis in chick embryo.
9. With neat labeled diagram describe different types of eggs.
10. What is fertilization? Describe types and process of fertilization.
11. Describe in detail metamorphosis in Frog.
12. Describe hormonal regulation in metamorphosis of frog.
13. Describe the structure of mature egg and its membranes.
14. Describe the process of gastrulation in frog.
15. Describe in detail fertilization and cleavage in chick.
16. Describe blastula and fate map in chick.
17. Describe the process of gastrulation in chick.
18. Describe the process of development of gut of chick embryo upto 72 hrs of incubation.
19. Describe the process of development of neural tube and brain of chick embryo upto 72 hrs of incubation.
20. Describe the process of development of heart of chick embryo upto 72 hrs of incubation.
21. Describe the implantation of embryo in human being.
22. What id placenta? Describe different types of placenta and its significance.
23. Describe Fertilization and give the significance of fertilization.
24. Describe the process of neurulation in frogs.

25. What is grastula? Describe the process of gastrulation in chick.

26. Define Fertilization and explain the process of internal fertilization.

27. Describe the fate of three germ layers in the frog.

28. Describe chick development up to development of primitive streak.

Shorts Notes

1. Capacitation of sperm
2. Fate map of frog
3. Development of primitive streak
4. Area opaca and area pellucida
5. Yolk sac placenta
6. Structure of Mature Egg of Bird
7. Capacitation of sperm
8. Fertilization in frog
9. Hormonal control of frog metamorphosis
10. What is vitellogenesis? Explain its process in chick
11. Yolk sac placenta
12. Eggs based on distribution of Yolk in cytoplasm
13. Amphimixis
14. Cleavage cell divisions in frog
15. Morphological changes during Frog metamorphosis
16. Development of primitive streak
17. Types of placenta
18. Significance of placenta
19. Types of eggs
20. Types of Cleavages
21. Hormonal control of frog metamorphosis
22. Egg of Frog
23. What is vitellogenesis? Explain its process in chick
24. Development of hypoblast in chick embryo
25. Symptoms of implantation
26. Structure of Sperm
27. Structure of Hen’s egg

28.Types of Cleavages

29.. External Fertilization

30. Blastula of frog

31. Development of primitive streak

32. Allantois and its significance

33. Extra embryonic membrane – Amnion and chorion