REV-01
BSZ/04/10

2024/07

SET A

B.Sc. ZOOLOGY
SIXTH SEMESTER [SPECIAL REPEAT]
DEVELOPMENTAL BIOLOGY
BSZ-601

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

(Objective)

Time: 30 mins. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. Who first observed the blastoderm of chick embryo and described chick development?
   a. Aristotle b. Galen
   c. Harvey d. Hippocrates
2. "The parental characters are passed to the offspring through the germ cells and not from somatic cells". Which theory is this?
   a. Epigenesis b. Germplasm
   c. Preformation d. Regulative
3. Which of these events involve pattern formation?
   a. Growth b. Differentiation
   c. Morulation d. Pattern formation
4. During pattern formation in bilaterally symmetrical animals, what is the angle between the body axis?
   a. 90° b. 120°
   c. 180° d. 360°
5. Which of these can be detected in amniocentesis?
   a. Diabetes b. Ischemia
   c. Tay-Sachs disease d. Renal failure
6. In amphibian metamorphosis, which of these belongs to second category changes?
   a. Long tail of the tadpole reduces b. Lateral line organs disappear
   c. Pigmentation of skin changes d. Two pairs of legs develop
7. In developmental biology, what is meant by the 'growth'?
   a. Increase in cell size b. Increase in cell number
   c. Increase in volume of extracellular matrix d. All of the above
8. Which of these insect hormones stimulate protein synthesis, cytoplasmic growth, mitosis and cuticle deposition?
   a. Brain hormone b. Ecdysone
   c. Juvenile hormone d. TSH
9. Epimorphosis is:
   a. Dedifferentiation of adult structures b. Remodeling of existing tissues
   c. Development of new organs d. All of the above

10. Compensatory regeneration can be seen in:
    a. Salamander
    b. Lizard
    c. Mammalian liver
    d. Hydra

11. Which of the following conditions do not occur due to teratogenesis?
    a. Cerebral palsy
    b. Cleft lips
    c. Obesity
    d. Amelia

12. During fertilization, which part of the sperm secretes sperm lysine enzyme?
    a. Mitochondrial helix
    b. Acrosomal granules
    c. Nucleus
    d. Cytoplasmic machete

13. Which one of the following groups of animals has external fertilization?
    a. Mammal
    b. Reptile
    c. Bird
    d. Amphibia

14. Which one of the following cells have haploid number of chromosomes?
    a. Spermatogonia
    b. Primordial germ cell
    c. Primary spermatocyte
    d. Secondary spermatocyte

15. In centrolecithal egg, cleavage pattern is:
    a. Spiral
    b. Radial
    c. Superficial
    d. Rational

16. The embryonic tissue that exerts an influence on other tissues to form an organ or structure is termed as:
    a. Evocator
    b. Donor
    c. Competent
    d. None of the above

17. Embryo is most susceptible to teratogenic agents during the stage of:
    a. Cleavage
    b. Blastoderm formation
    c. Gastrulation
    d. Organogenesis

18. Which one of the following is the primary egg membrane of mammalian egg?
    a. Zona pellucida
    b. Zona radiata
    c. Jelly envelope
    d. Vitelline membrane

19. Yolk sac placenta is found in:
    a. Rat
    b. Pig
    c. Monotreme
    d. Camel

20. Alecithal eggs are found in:
    a. Bird
    b. Placental mammal
    c. Insect
    d. Frog

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Descriptive

Time : 2 hr. 30 mins. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. Describe the process of implantation of an embryo. Mention the importance of proper implantation. 8+2=10
2. What do you mean by growth and differentiation? Explain the different types of growth. 4+6=10
3. Who first reported regeneration and in which living being? What do you mean by blastema? Explain the limb regeneration in salamander. 1+1+2+6=10
4. What are the different types of insect metamorphosis? Discuss the hormonal control of insect metamorphosis with necessary illustration. 5+5=10
5. What are the unique properties of stem cells? Write about the types of stem cells present in embryo and adult bodies. 2+8=10
6. Write the process of oogenesis. Mention its significance. 8+2=10
7. What is blastula? Write a note on types of blastula. 2+8=10
8. Write short notes on *any two*: 5+5=10
   a) Cytoplasmic determinants
   b) Pattern formation
   c) Organogenesis

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