

ZO-504

Human Cytogenetic and Developmental Biology

M. Sc. ZOOLOGY (MSCZO-12)

First Year, Examination, 2018

Time : 3 Hours

Max. Marks : 80

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Learners are required to attempt the questions contained in these Sections according to the detailed instructions given therein.

Section-A

(Long Answer Type Questions)

Note : Section 'A' contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. Describe the process of fertilization. What is its significance ?
2. Write an essay on differentiation.
3. What do you understand by recombinant DNA technology ? Discuss the various uses of this technology in genetic engineering.
4. Describe the structure and functions of chromosome.

Section–B**(Short Answer Type Questions)**

Note : Section ‘B’ contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer *four* (04) questions only.

1. What is growth ? Describe the process of cell growth.
2. What are chromosome abnormalities ? Explain.
3. What do you understand by human cytogenetics ?
4. Write method of slide preparation.
5. Write a short note on gastrulation.
6. Write a short note on inheritance of Haemophilia in human.
7. Briefly describe the types of cleavage.
8. Write a short note on tetrapod limb development.

Section–C**(Objective Type Questions)**

Note : Section ‘C’ contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

1. The first stage of cell division is called :
 - (a) Prophase
 - (b) Interphase
 - (c) Metaphase
 - (d) Anaphase
2. The term chromosome was coined by :
 - (a) W. Flemming

- (b) Waldeyer
 - (c) Sutton
 - (d) W. Roux
3. Changes in which of the following characterizes mutation ?
- (a) Phenotype
 - (b) Genotype
 - (c) Both (a) and (b)
 - (d) None of these
4. Which of the following is known as Royal disease ?
- (a) Sickle cell anaemia
 - (b) Colourblindness
 - (c) Haemophilia
 - (d) Alzheimer's disease
5. Restriction enzymes are also called as :
- (a) Molecular scalpels
 - (b) Biological scissors
 - (c) Molecular knives
 - (d) All of the above
6. Human eggs are :
- (a) Mesolecithal
 - (b) Alecithal
 - (c) Microlecithal
 - (d) Macrolecithal

7. During cleavage :
- (a) Interphase is very long
 - (b) Interphase is of short duration
 - (c) Interphase is absent
 - (d) None of the above
8. Fusion of male and female gametes is called :
- (a) Cleavage
 - (b) Blastulation
 - (c) Gastrulation
 - (d) Fertilization
9. The study of developmental changes is known as :
- (a) Developmental biology
 - (b) Chronobiology
 - (c) Both (a) and (b)
 - (d) None of the above
10. Where in the human male does spermatogenesis occur ?
- (a) Ovaries
 - (b) Testes
 - (c) Epididymus
 - (d) Seminal vesicle