

PC-273-CV-19 (S)

M.Sc. (2<sup>nd</sup> Semester)

Examination, Dec.-2020

ZOOLOGY

Paper-IV

TOOLS AND TECHNIQUES FOR BIOLOGY

Time : Three Hours]

[Maximum Marks : 80

[Minimum Pass Marks : 29

नोट : दोनों खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं।

Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

Section-A

1. Answer the following objective type questions:- 1x10=10
- (a) What is a colorimeter analysis based on?
  - (b) What is the centrifuge used for?
  - (c) How is the order of number in PH scale?
  - (d) What do you mean by cell proliferation?
  - (e) What are the 4 type culture?
  - (f) In which type of chromatography, the stationary phase held in a harrow tube and the mobile phase is forced through it under pressure?
  - (g) Which technique separates charged particles using electric field?
  - (h) Which component of the light microscope illuminates the specimen by gathering diffuse rays from the light microscope?
  - (i) In Glucose electrode, glucose oxidase has been coupled to an electrode by which of the materials?
  - (j) Chromatography is a physical method used to isolate and analyze which mixture?
2. Answer the following question:- 2x5=10
- (a) What is the principle of fluorescence?
  - (b) What is culture media and its types?
  - (c) What is cell viability?
  - (d) What is cryopreservation?
  - (e) What chromatography?

Section-B

15x4=60

Answer the following long answer type questions:-

UNIT-I

3. Write the principle and application of colorimeter?  
OR

Write short notes on:-

- (a) Ultra centrifuge (b) Principle of light transmission

UNIT-II

4. Describe in detail about microbiological techniques?  
OR

Write short notes on:-

- (a) Culture media preparation (b) Inoculation and growth monitoring

UNIT-III

5. Describe cryopreservation for cells tissues and organisms?  
OR

Write short notes on:-

- (a) Cryotechniques of electron microscope  
(b) Immunological techniques based on antigen antibody interactions

**UNIT-IV**

**6. Describe the molecular separations by chromatography and its different types?  
OR**

**Write short notes on:-**

**(a) Paper electrophoresis (b) Cell preparation by density gradient**