

SECOND SEMESTER EXAMINATION 2021-22**M.Sc. ZOOLOGY****Paper - IV****Tools & Techniques for Biology**

Time : 3.00 Hrs.

Max. Marks : 80

Total No. of Printed Page : 03

Mini. Marks : 29

Note: Question paper is divided into three sections. Attempt question of all three section as per direction. Distribution of Marks is given in each section.

Section - 'A'

Q.1 Answer the following questions in few words (any 6) :

6x2=12

- (i) What is the use of autoclave. Which techniques is used in it ?
- (ii) Draw a typical bacterial growth curve showing all phases of a culture ?
- (iii) Define viable count and total count ?
- (iv) Draw a well labeled diagram of compound microscope ?
- (v) Who invented Electron microscopes. Name its types ?
- (vi) What is Carrel's flask. Give its uses ?
- (vii) How many rooms / areas are necessary in a tissue culture lab. Give names of main instruments used in each area ?
- (viii) Who developed ultracentrifuge and for what purpose ?
- (ix) What is ion exchange chromatography. Give one use of it ?
- (x) What methods are used for cell disaggregation for cell culture ?

(2)

Section - 'B'

Short Answer questions (200 words) :

- Q.2 Attempt any four questions from the following : **4x5=20**
- (i) What are biochemical mutants. Gove one example ?
 - (ii) Define sterilization, disinfection, pasteurization and tantalization ?
 - (iii) What is haemocyometer and why is it named. Give the method of counting any cells by using it ?
 - (iv) Compare SEM and TEM, also give available say diagram ?
 - (v) Define Lambent's and Beer's Laws ?
 - (vi) Draw a well labeled say diagram of fluorecence microscope and give its uses ?
 - (vii) Write about general principles of light and define magnification and resolution ?

Section - 'C'

- Q.3 Attempt any four questions from the following : **4x12 = 48**
- (i) How the visibility of invisible structures can be seen. Give principle and instrumentation of the instrument used for the purpose ?
 - (ii) What is chromatography. Give an account of column and their layer chromatographic ?
 - (iii) Discuss cryopreservation methods for cells in details ?
 - (iv) What do you mean by inoculation. Describe various inoculation techniques for liquid and solid media ?

(3)

- (v) Give the main components of PH meter and explain the construction and working of various types of electrodes. Discuss precautions and maintenance of PH meter ?
- (vi) What is culture media. Describe its types and compositions ?
- (vii) Give salient features of Antigen Antibody interactions. Discuss techniques based an agglutination reaction ?

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