

No. of Printed Pages : 8

Sl. No.

Question Booklet Code

**A**

**21BOT1S1LP**

**M.Sc. I Semester Degree Examination, April/May - 2023  
Skill Enhancement Courses (SEC)**

**BOTANY**

**Modern Methods of Plant Analysis**

Time : 1 Hour

Maximum Marks : 30

**INSTRUCTIONS TO CANDIDATES**

1. The Question Paper will be given in the form of a Question Booklet. There will be four/two/one versions of Question Booklets with Question Booklet Code viz. **A, B, C & D / A & B / A**.
2. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your Question Booklet is un-numbered, please get it replaced by new Question Booklet with same Code.
3. Immediately after the commencement of the examination, the candidate should check that the Question Booklet supplied to him contains all the 30 questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same Code. This is most important.
4. A blank sheet of paper is attached to the Question Booklet. This may be used for Rough Work.
5. **Please read carefully all the instructions on the top of the Answer Sheet before marking your answers.**
6. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using **Black Ball-Point Pen** in the OMR Answer Sheet.
7. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator.
8. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.
9. First fifteen minutes is provided to fill the general information of the Student. Eg. Student Name, Student ID, etc. in the OMR Answer Sheet.
10. Without the instruction of the Invigilator do not open the Question Paper Booklet Seal.

**A**



**P.T.O.**

1. Which membrane is used in blotting ?  
(A) Agarose (B) Sucrose  
(C) Polythene (D) Nylon
  
2. What is the role of SDS in SDS-PAGE ?  
(A) Protein denaturing and imparting net negative charge  
(B) Imparting net negative charge to overall proteins  
(C) Imparting equal mass to all the proteins  
(D) Protein unfolding and imparting net negative charge
  
3. PVDF is \_\_\_\_\_ material.  
(A) Piezoelectric (B) Magnetostrictive  
(C) Thermoelectric (D) Electrostrictive
  
4. The instrument used to draw clear magnified sketches of objects under microscope is :  
(A) Compound microscope (B) Light microscope  
(C) Camera lucida (D) Camera attached stereomicroscope
  
5. What is the first stage of the two-stage two-dimensional PAGE ?  
(A) SDS PAGE (B) HPLC  
(C) Isoelectric focusing (D) Sedimentation
  
6. Which of the following is used to visualize live cells ?  
(A) SEM (B) TEM  
(C) Phase contrast microscope (D) All of these



7. At what temperature does denaturation of DNA double helix takes place ?
- (A) 54°C (B) 74°C  
(C) 94°C (D) 60°C
8. Phenomenon of producing sound under mechanical stress is called \_\_\_\_\_.
- (A) Magnetostriction (B) Acoustiction  
(C) Electrostriction (D) Acoustic emission
9. ELISA (enzyme-linked immunosorbent assay) allows for rapid screening and quantification of the presence of \_\_\_\_\_ in a sample.
- (A) Amino acid (B) DNA  
(C) Antigen (D) Protein
10. The region of electromagnetic spectrum for nuclear magnetic resonance :
- (A) Microwave (B) Infrared  
(C) Radio frequency (D) UV rays
11. Probe is a :
- (A) protein for detecting a specific DNA molecule  
(B) short piece of labelled DNA which are complementary to the nucleic acid strand to be detected  
(C) short piece of labelled DNA or RNA which are complementary to the nucleic acid strand to be detected  
(D) none of these



- 12.** Which fluorescent dye can be used for red fluorescence ?
- (A) Rhodamine (B) Fluorescein  
(C) Carmine (D) DAPI
- 13.** The centrifugation is based on the principle, when a force is less than the gravity desired.
- (A) True (B) False
- 14.** Which of the following is used as a media for density gradient ?
- (A) Agarose (B) Ficoll  
(C) Luria broth (D) Propylene glycol
- 15.** What outcome would you least expect if the amount of template in a multiplex PCR fell significantly below the optimal amount ?
- (A) Longer targets amplify poorly or fail to amplify  
(B) Allelic drop out  
(C) Increased yield  
(D) Heterozygote imbalance
- 16.** In electrophoresis the DNA migrates towards :
- (A) Cathode or Positive electrode  
(B) Anode or negative electrode  
(C) Cathode or negative electrode  
(D) Anode or positive electrode



17. Which of the following is the simplest of pH meters ?
- (A) Null-detector type pH meter (B) Direct reading type pH meter  
(C) Digital pH meter (D) Modern pH meter
18. Can Beer-Lambert law be used to study the absorptivity coefficient of higher concentration samples ?
- (A) YES (B) NO
19. Larger DNA fragments require a \_\_\_\_\_ transfer time.
- (A) Longer (B) Shorter  
(C) Medium (D) Very high
20. Absorption spectrum results when an electron in an atom undergoes a transition from :
- (A) Higher energy level to lower energy level  
(B) Lower energy level to higher energy level  
(C) Intermediate levels  
(D) All the above
21. Electrophoresis of histones and myoglobin under non-denaturing conditions (pH = 7.0) results in :
- (A) both proteins migrate to the anode  
(B) histones migrate to the anode and myoglobin migrates to the cathode  
(C) histones migrate to the cathode and myoglobin migrates to the anode  
(D) both proteins migrate to the cathode



22. In which type of chromatography, the stationary phase held in a narrow tube and the mobile phase is forced through it under pressure ?
- (A) Column chromatography
  - (B) Planar chromatography
  - (C) Liquid chromatography
  - (D) Gas chromatography
23. A globular protein of molecular weight of 50kDa exists as a mixture of monomers and dimers in a solution. The most appropriate technique for the separation of these two forms of proteins is :
- (A) Gel filtration chromatography
  - (B) Ion exchange chromatography
  - (C) Thin layer chromatography
  - (D) Paper chromatography
24. Centrifugation based on which of the following law ?
- (A) Pascal's law
  - (B) Stokes law
  - (C) Stain law
  - (D) Patrick's law
25. Which of the following statements is accurate for the PCR - polymerase chain reaction ?
- (A) Automated PCR machines are called thermal cyclers
  - (B) A thermostable DNA polymerase is required
  - (C) Millions to billions of desired DNA copies can be produced from microgram quantities of DNA
  - (D) All of the above



26. Chromatography that involves the separation of isomers is :
- (A) Thin layer Chromatography
  - (B) Count current Chromatography
  - (C) Chiral Chromatography
  - (D) Paper Chromatography
27. The refractive index of air is :
- (A) 0.05
  - (B) 0.75
  - (C) 1.00
  - (D) 1.25
28. *Thermus aquaticus* is the source of \_\_\_\_\_.
- (A) Vent polymerase
  - (B) Primase enzyme
  - (C) Taq polymerase
  - (D) Both (A) and (C)
29. Which of the following types of chromatography involves the process, where the mobile phase moves through the stationary phase by the influence of gravity or capillary action ?
- (A) Column Chromatography
  - (B) High Pressure Liquid Chromatography
  - (C) Gas Chromatography
  - (D) Planar Chromatography
30. Which of the following is the formula for pH calculation ?
- (A)  $\log_{10}[\text{H}^+]$
  - (B)  $-\log_{10}[\text{H}^+]$
  - (C)  $\log_2[\text{H}^+]$
  - (D)  $-\log_2[\text{H}^+]$

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**SPACE FOR ROUGH WORK**

**A**

