



RAN - 1903001103020001



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**B. Sc. (Biotechnology) (Sem. - III) Examination**

**March - 2023**

**BT-05 : Instrumentations and Techniques**

**સૂચના : / Instructions**

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.  
**Fill up strictly the details of signs on your answer book**

Name of the Examination:

**B. Sc. (Biotechnology) (Sem. - III)**

Name of the Subject :

**BT-05 : Instrumentations and Techniques**

Subject Code No.: **1903001103020001**

Seat No.:

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Student's Signature

(2) All questions are compulsory.

***O.M.R. Sheet ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ  
O.M.R. Sheetની પાછળ છાપેલ છે.***

***Important instructions to fillup O.M.R. Sheet  
are given on back side of the provided O.M.R. Sheet.***

- Q. 1.** The colorimeter is generally allowed to warm up for 15 minutes in order to \_\_\_\_\_.  
A. Perform auto-cleaning  
B. Generate Vacuum  
C. Stabilize the light source and the detector  
D. None of the given
- Q. 2.** The useful range of absorbance scale is from 0-2 but it is desirable to keep within the range 0-1 because, above 1, the results become unreliable due \_\_\_\_\_.  
A. To scattering of light.  
B. To refraction of light from the edge of solution  
C. To difficulty in calculation results  
D. All of the given
- Q. 3.** In colorimeter, process of recording “zero absorbance” is called as \_\_\_\_\_.  
A. Celebration  
B. Calibration  
C. Zeroing  
D. Auto-tuning
- Q. 4.** Beer-Lambert’s law is only applicable to \_\_\_\_\_.  
A. A beam of monochromatic light passes through a homogeneous transparent medium  
B. A beam of dichromatic light passes through a homogeneous transparent medium  
C. A beam of multichromatic light passes through a homogeneous transparent medium  
D. All of the given are correct
- Q. 5.** In U.V./VIS spectrometry, \_\_\_\_\_ acts as the silent component of the sample.  
A. Water  
B. Proteins  
C. Nucleic Acids  
D. Organic Solvents
- Q. 6.** The absorption of UV light by nucleic acids depends upon \_\_\_\_\_.  
A.  $n-\pi^*$  transition of purine  
B.  $\pi-\pi^*$  transition of purine and pyrimidine  
C.  $n-\pi^*$  and  $\pi-\pi^*$  transition of purine and pyrimidine  
D.  $n-n^*$ ,  $n-\pi^*$  and  $\pi-\pi^*$  transition of purine and pyrimidine





- Q. 20.** Which of the following is not the characteristic of ion selective electrodes?
- A. It is fragile
  - B. Easy to use
  - C. Available in different sizes and shapes
  - D. It is insensitive to many ions
- Q. 21.** In recent liquid membrane electrodes, the porous liquid membrane is replaced with which of the following?
- A. Polyvinyl chloride
  - B. Polyacryl chloride
  - C. Polyester membrane
  - D. Polyacryl amide
- Q. 22.** Identify the radioactive version of carbon.
- A.  $^{12}\text{C}$
  - B.  $^{15}\text{C}$
  - C.  $^{13}\text{C}$
  - D.  $^{14}\text{C}$
- Q. 23.** What does act as an anode in Geiger Muller counter?
- A. Argon gas
  - B. Platinum rod
  - C. Copper cylinder
  - D. Steel plate
- Q. 24.** Chromatography technique is invented by \_\_\_\_\_.
- A. M. Tswett
  - B. CremerC.
  - C. William Harris
  - D. Duboscq
- Q. 25.** Which of the Factors affects the efficiency of autoradiography?
- A. Thickness of the sample
  - B. All of Given
  - C. Thickness of emulsion
  - D. Exposure time
- Q. 26.** Identify SI unit of radioactivity.
- A. Curie
  - B. Rutherford
  - C. Becquerel
  - D. Millicurie
- Q. 27.** Alkalinity of a solution \_\_\_\_\_ as the pH \_\_\_\_\_.
- A. Decreases, increases
  - B. Increases, increases
  - C. Increases, decreases
  - D. None of the above

- Q. 28.** Which one is not included in planer chromatography?
- A. TLC  
B. Paper Chromatography  
C. HPLC  
D. HPTLC
- Q. 29.** One electron volt (eV) is equal to \_\_\_\_\_.
- A.  $1.6 \times 10^{-16}$  J  
B.  $1.9 \times 10^{-19}$  J  
C.  $1.6 \times 10^{-19}$  J  
D.  $1.9 \times 10^{-16}$  J
- Q. 30.** Cocktails used in scintillation fluids does not contain \_\_\_\_\_.
- A. 2,5-diphenyloxazole  
B. 1,4 bis(5phenyloxazol-2-yl) benzene  
C. 2-(4'-t-butylphenyl)-5-(4''-biphenyl)-1,3,4,-oxydiazole  
D. 1,4 bis(5benzenoxazol-2-yl) phenyl
- Q. 31.** Intensifying screen sheet is used in \_\_\_\_\_.
- A. Direct autoradiography  
B. Indirect autoradiography  
C. Converged autoradiography  
D. Conservational autoradiography
- Q. 32.** \_\_\_\_\_ is defined as the total amount, as distinct from the concentration, of analyte present in one phase divided by the total amount present in the other phase.
- A. Distribution coefficient  
B. Partition coefficient  
C. Effective distribution coefficient  
D. Concentration
- Q. 33.** Choose the correct statement for chromatography.
- A. Higher the adsorption to the stationary phase, the faster the molecule will move through the column.  
B. Higher the solubility in the mobile phase, the faster the molecule will move through the column  
C. Higher the absorption to the stationary phase, the faster the molecule will move through the column  
D. None of the above are correct.







**SPACE FOR ROUGH WORK**