



**PBG-003-001326-A** Seat No. \_\_\_\_\_

**B. Sc. (Biochemistry) (Sem. III) (CBCS) Examination**

**November / December - 2018**

**Biophysical & Biochemical Techniques : Paper - 301**

**Faculty Code : 003**

**Subject Code : 001326**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

1 Answer all the following questions. given choices : **20**

- (1) \_\_\_\_\_ centrifugation technique is used to check the purity of any reagent?
- (2) maximum speed of operation of high speed centrifuge is \_\_\_\_\_
- (3) What is "r" in centrifuge?
- (4) Which type of rotor is used in table-top centrifuge
- (5) In paper, chromatography of amino acids. The distance travelled by solvent front from the origin was 10 cms while the distance travelled by alanine and lysine from the origin were 2cm and 4cm respectively. The R<sub>f</sub> values for alanine and lysine will be.
- (6) Write the name of tracking dye.
- (7) Which of the following compounds are not separated using Gas Liquid Chromatography GLC?
- (8) \_\_\_\_\_ technique 'is not used in elution from ion exchange chromatography column?
- (9) A radioisotope of argon, <sup>35</sup>Ar, lies below the "band of stability: (n/p ratio too low). One would predict that it decays via \_\_\_\_\_
- (10) How old is a bottle of wine if the tritium (<sup>3</sup>H) content (called activity) is 25% that of a new wine? The half-life of tritium is 12.5 Years.
- (11) The heaviest of the particles emitted are \_\_\_\_\_ partical

- (12) "Atoms of an element having same number of neutron are called \_\_\_\_\_"
- (13) Gel Electrophoresis is used to separate..
- (14) Polysaccharide can be detected by using \_\_\_\_\_ in gel electrophoresis.
- (15) DNA will migrate towards \_\_\_\_\_ electrode in agarose gel electrophoresis.
- (16) Basic protein will migrate towards \_\_\_\_\_
- (17) \_\_\_\_\_ lamp is used as source of visible light?
- (18) The relationship between the grooves and wavelength is \_\_\_\_\_
- (19) The Wavelength of Visible light is \_\_\_\_\_
- (20) Why blue color solution red color filter is used in blue color solution.

2 (a) Answer any **three** of the following questions : **6**

- (1) Define the term wavelength.
- (2) State the limitation of Geiger Muller counters and ways to Eliminate it.
- (3) Write about high speed centrifuge.
- (4) Define Rf values in chromatography.
- (5) Write full form of SDS and use of SDS in the SDS PAGE.
- (6) What do you mean by electrophoresis.

(b) Answer any **three** of the following questions : **9**

- (1) Why double beam is better than single beam spectrophotometer.
- (2) Give the short note of Scintillation Counting.
- (3) Write the application of Ultra speed centrifuge
- (4) Write the basic principle of ion exchange chromatography
- (5) A protein when separated by native PAGE, it gives one band at 200,000 D. When separated by SDS-PAGE it gives two band corresponding to 75000D and 25000 D. Comment on the possible Protein's quaternary structure.
- (6) Give some applications of Radioisotope in medical field.

- (c) Answer any **two** of the following questions : **10**
- (1) Discuss single beam spectrophotometer in detail.
  - (2) Explain the applications of gel electrophoresis.
  - (3) Write a detail note on analytical ultracentrifuge.
  - (4) Explain Gas Liquid chromatography in detail.
  - (5) Discuss biological applications of radioisotopes.
- 3** (a) Answer any **three** of the following questions : **6**
- (1) Define Micro molecular extinction coefficient.
  - (2) Explain Radioactivity and Radioactive compound.
  - (3) Why isotonic solution is used in differential centrifugation
  - (4) Explain water regain capacity ( $W_r$ ) of gels in chromatography.
  - (5) Write about detection of compounds by fluorescence in the electrophoresis:
  - (6) Write the difference between colorimeter and spectrophotometer.
- (b) Answer any **three** of the following questions : **9**
- (1) Define Beer's and Labert's law.
  - (2) Explain alpha particle emission and gamma emission.
  - (3) Enlist factors affecting process of centrifugation.
  - (4) Define distribution coefficient ( $K_d$ )
  - (5) Explain the terms Ampholytes with any example
  - (6) Write advantages of TLC.
- (c) Answer any **two** of the following questions : **10**
- (1) Explain types of radioisotopes.
  - (2) Explain 2D gel electrophoresis.
  - (3) Describe in detail about preparative ultracentrifugation.
  - (4) Write a short note on ion exchange chromatography.
  - (5) Write a detail note on double beam spectrophotometer.
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