

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022  
(Third Semester)

Branch – BIOCHEMISTRY

BIOCHEMICAL TECHNIQUES

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

- Find the term Buffer.  
(a) Weak acids and its salt with a Strong base  
(b) Strong acids and its salt with a Strong base  
(c) Weak base and its salt with a Strong base  
(d) Weak base and its salt with a Weak base
- Which of the following is used to classify the Calomel electrode?  
(a) Materials used in the electrode  
(b) Amount of Mercury present  
(c) Concentration of KCl  
(d) Purity of Mercury
- Label the biomedical instrument that contains Grating.  
(a) Calorimeter  
(b) Colorimeter  
(c) Spectrophotometer  
(d) Ultracentrifuge
- Identify the most critical part of a Flame photometer.  
(a) Detector  
(b) Nebulizer  
(c) Recorder  
(d) Filter
- Find the another name of Gel Filtration chromatography  
(a) Molecular Sieve chromatography  
(b) Thin Layer chromatography  
(c) Paper chromatography  
(d) Ion – Exchange chromatography
- Name the mostly used mobile gas in GLC.  
(a) Carbon monoxide  
(b) Oxygen  
(c) Helium  
(d) Methane
- Label the maximum speed of high speed centrifuges.  
(a) 10000 rpm  
(b) 15000 rpm  
(c) 20000 rpm  
(d) 25000 rpm
- Indicate the nature of the cetyltrimethylammonium bromide  
(a) Cationic detergent  
(b) Strong Anionic detergent  
(c) Weak Anionic detergent  
(d) Neutral detergent
- Label the international system of units of Radioactivity.  
(a) Curie  
(b) millicuries  
(c) microcuries  
(d) Bequerel
- Which type of emitters is measured by Liquid Scintillation counter?  
(a)  $\alpha$  – Emitters  
(b) Strong  $\beta$  – Emitters  
(c) Soft  $\beta$  – Emitters  
(d)  $\gamma$  – Emitters

SECTION - B (35 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 7 = 35)

- (a). Outline the principle and instrumentation of Calomel electrode.  
(OR)  
(b). Derive Henderson – Hasselbalch equation.
- (a). Show the components of Spectrophotometer.  
(OR)  
(b). Describe the instrumentation and applications of Colorimeter.

Cont...

- 13 (a). Explain the technique of TLC.  
(OR)  
(b). Narrate the principle and techniques of Column chromatography.
- 14 (a). Summarize the factors that affect the electrophoretic mobility.  
(OR)  
(b). Describe the Density gradient centrifugation.
- 15 (a). Sketch the various types of Geiger –Muller tubes.  
(OR)  
(b). Outline the technique Autoradiography.

**SECTION - C (30 Marks)**

Answer any **THREE** Questions

**ALL Questions Carry EQUAL Marks (3 x 10 = 30)**

16. Discuss the instrumentation and applications of Glass electrode.
17. Enumerate the principle and components of Flame photometer.
18. Examine the techniques of Molecular sieve chromatography and mention its applications.
19. Explain the principle and applications of Analytical ultracentrifuge.
20. Elucidate the measurement of radioactivity by Scintillation counter method.

Z-Z-Z

END