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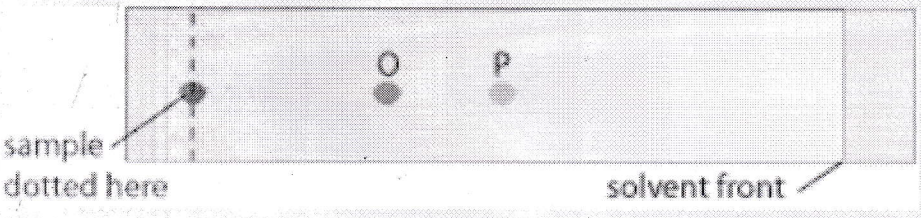
School: School of Science
Program/s: Biomedical Science
Year: 2nd **Semester:** III
Examination: End Semester Examination
Examination year: December - 2021

Course Code: BM205
Date: 08/12/2021
Time: 8:30 am to 10:30 am

Course Name: Biophysics
Total Marks: 40
Total Pages: 2

Instructions:

- All questions are compulsory
- Draw diagram wherever required.
- * COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No.	Details	Marks	COs*	BTL#
Q.1	<p>A) Choose the correct options (5)</p> <p>1. Substance A is made up two components. O and P. A small sample of substance A was dotted onto chromatography paper, and a chromatogram was developed using an appropriate solvent. The result is shown below. Component O is adsorbed</p>  <p>a. Less strongly onto the stationary phase than component P. b. Less strongly onto the mobile phase than component P. c. More strongly onto the stationary phase than component P. d. More strongly onto the mobile phase than component P.</p> <p>2. Reynolds Number is used to predict the type of blood flow in a blood vessel. It does not depend on which of the following factor? a. Vessel diameter b. Pressure of fluid c. Viscosity d. Density</p> <p>3. Any particles' settling velocity in centrifugation does not depend on: a. Size and shape b. Centrifugal acceleration c. Solubility of particle</p>	10	CO1, CO2, CO3, CO4	BT1, BT2, BT3

	<p>d. Viscosity of particle</p> <p>4. Proteins can be separated by which of the chromatography technique</p> <p>a. Ion exchange chromatography b. Affinity chromatography c. Thin layer chromatography d. Gel permeation chromatography</p> <p>5. Polymerization of PAGE gel occurs due to</p> <p>a. Presence of Acrylamide and Bisacrylamide b. Heating of gel c. Presence of APS and TEMED d. None of the these</p> <p>B) Answer the following. (5)</p> <p>1. The more massive a biological particle is, the slower it moves in a centrifugal field. True or False. State with justification.</p> <p>2. Focussing power of the eye is controlled by _____ muscles and this phenomenon is known as _____.</p> <p>3. Pressure between lungs and chest wall is called _____ and it is _____ (positive or negative) with respect to pressure inside lung.</p> <p>4. Define the terms: a) Retention time, b) Eluent, c) Stationary phase, d) Chromatogram.</p> <p>5. Agarose gels are fragile and are held together by _____ bonds.</p>			
Q.2	<p>Short answer questions (2*5 = 10)</p> <p>1. Explain briefly the principle of SDS-PAGE.</p> <p>2. What are the two types of work done during breathing?</p> <p>3. With the help of an example define equation of continuity.</p> <p>4. Differentiate between Nernst potential and GHK equation (no need to write the formula for both)</p> <p>5. Discuss the relationship between RPM and RCF.</p>	10	CO1, CO2, CO3, CO4	BT1, BT2, BT3
Q.3	<p>Answer any 5 in detail (4*5 = 20)</p> <p>1. What is differential centrifugation? Give any two applications.</p> <p>2. Write a short note on membrane curvature and its physiological implications.</p> <p>3. Give any two biological implications of surface tension and viscosity.</p> <p>4. Discuss the phases and propagation of an action potential.</p> <p>5. Write a short note on HPLC.</p> <p>6. With the help of a neat labelled diagram, discuss the structure of a biological membrane.</p>	20	CO1, CO2, CO3, CO4	BT1, BT2, BT3

*****End of Question Paper*****