

B.Sc. Part-III Honours Examination'2020

DR KANAILAL BHATTACHARYYA COLLEGE
(UNIVERSITY OF CALCUTTA)

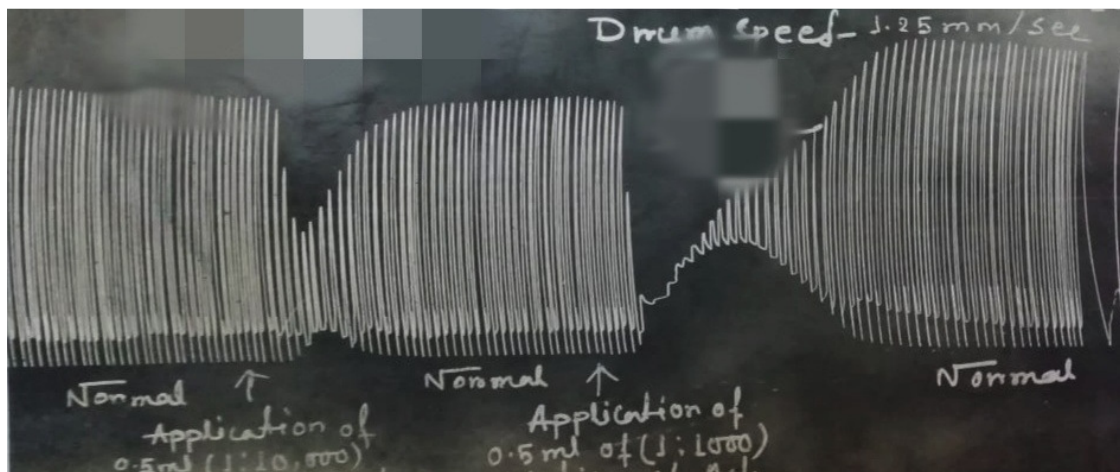
Subject-Physiology (Honours)

Paper- 7th (Practical)

Full Marks: 100

Time: 2 hours

- Q.1 (a) Write down in brief the procedure of blood sugar determination using Folin–Wu method.
(b) Calculate the percentage of Blood Sugar in the blood sample using the data given below.
Volume of blood taken for Folin-Wu Filtrate - 1ml.
Concentration of working standard of glucose- 0.1 mg glucose/ml.
Optical Densities (O.D) as measured by the Photoelectric Colorimeter:
O.D of Unknown (blood): 0.15
O.D of Standard: 0.11
10+10=20
- Q2. (a) Write down the principle of determination of serum protein by Biuret method.
(b) State the experimental protocol for estimation of Serum Protein by Biuret method (preferably in a tabular form).
(c) Calculate the concentration of Serum Protein in gm/dL using the data given below.
Concentration of standard BSA: 6 mg/ml.
Serum dilution: 1: 10.
Optical Densities (O.D) as measured by the Photoelectric Colorimeter:
O.D of Unknown (Serum): 0.36
O.D of Standard: 0.33
5+5+10=20
- Q3. Given below is the kymographic recording of the effect of different doses of a bioactive ligand on perfused heart of toad.

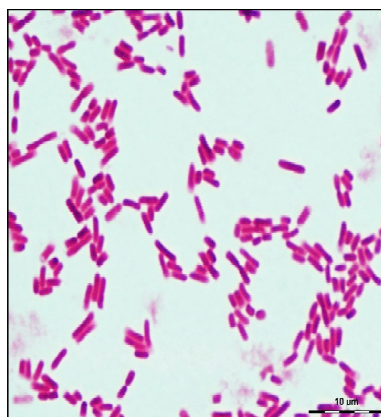


- a) Write a note on the effects produced by this unknown ligand on the resting perfused heart. Give a suitable interpretation on your observation.
b) Calculate the normal heart rate (beats/min) from the recording, if 16 beats are completed in 15 mm of recording paper. (Drum speed: 1.25 mm/second).
c) Write down the composition of stock and working solution of Perfusion fluid for amphibians (In a tabular form).
d) What would happen if excess calcium is present in perfused fluid?
10+5+5+5=30

Q 4. Given below are photographs of two bacterial strains after Gram Staining.



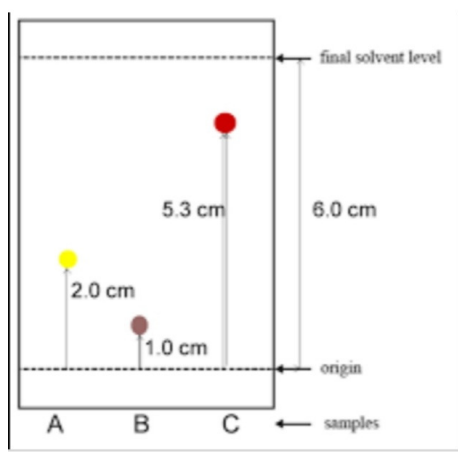
A-- Purple coloured bacterial cells



B—Pink coloured bacterial cells

- (i) Identify the bacterial strains demonstrated in the above diagrams A and B in with reasons and interpret your observations.
- (ii) Give two examples of each of Gram positive and Gram negative bacteria.
- (iii) Name the primary stain and counter stain used in the method of Gram staining.
- (iv) Following diagram represents a chromatogram of three amino acids A, B and C in butanol: acetic acid solvent. Calculate the R_f-values of A, B and C from the diagram. What is R_f value used for?

$$(3+3)+4+2+(6+2)=20$$



Q. 6. Laboratory Notebook:

$$4+3+3=10$$