

B.Sc.(Hons) Part III, Examination, 2020

CITY COLLEGE CENTRE

PHYSIOLOGY HONOURS

Paper – VII

ATTEMPT ALL QUESTIONS

TIME 2Hrs

FM 100

Q 1.

(a) Write the principle of estimation of blood sugar by the Folin-Wu method.

(b) Write the detailed procedure for estimation of blood sugar by Folin-Wu method as followed in your class.

(c) Calculate the percentage of Blood Sugar in the blood sample using the data given below.

(i) Goat blood was taken for the estimation by Folin-Wu method following the standard protocol. Volume of blood taken was – 1ml

(ii) Stock Standard solution was prepared by dissolving 100mg of glucose in 100 ml of distilled water from which working standard had to be prepared.

(iii) Result showing the Optical Densities (O.D.) as measured by the Photoelectric Colorimeter

O.D. of Unknown (sample) (R_u)— 0.18

O.D. of Standard (R_s)— 0.15

(d) Answer the following questions (**ANY FOUR**):

(i) Why calcium oxalate and sodium fluoride is added to the blood during collection for estimating glucose?

(ii) What will happen if a wet filter paper is used for filtering the blood precipitate?

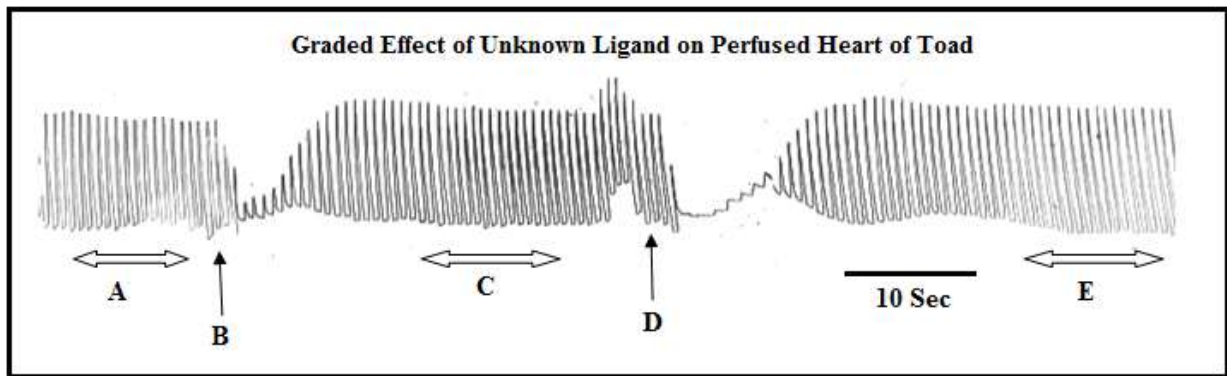
(iii) Why effervescence occurs after adding phosphotungstic acid during blood sugar estimation by Folin-Wu method?

(iv) Explain the significance of using Folin-Wu tubes in this estimation.

(v) What is Beer's law?

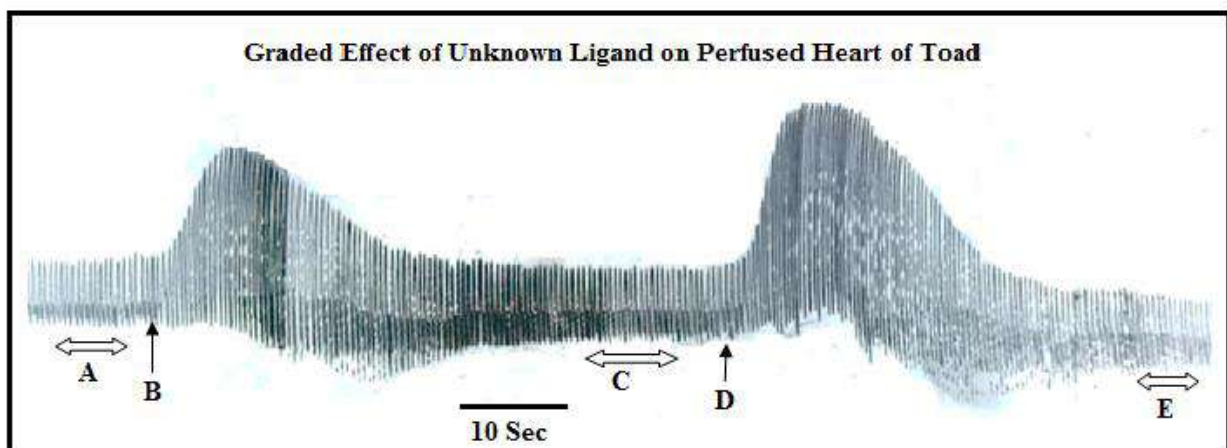
$6+8+8+(4 \times 2) = 30$

Q 2a



- Label the points "A", "B", "C", "D" and "E" as mentioned in the above recording.
- Calculate the normal heart beats/min from the recording.
- Write a note, as you observe, on the effects produced by the unknown ligand on the resting heart.
- Give a suitable interpretation on your observation. 5+2+3+5

Q 2b.



- Label the points "A", "B", "C", "D" and "E" as mentioned in the above recording.
- Calculate the normal heart beats/min from the recording.
- Write a note, as you observe, on the effects produced by the unknown ligand on the resting heart.
- Give a suitable interpretation on your observation. 5+2+3+5

Q 2c. Answer the following questions (any five).

5x2

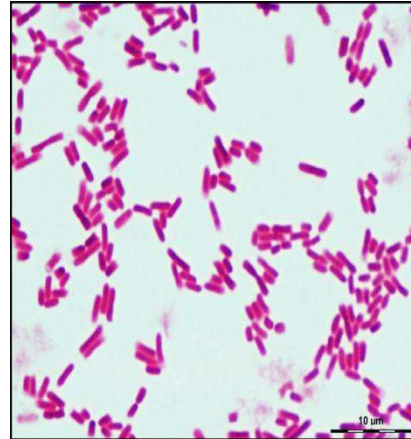
- What is "intrinsic heart beat"?
- What is the composition of the ions present in the perfusion working fluid?
- What is double pithing?
- What is "Latent pacemaker"? Can you experimentally show its presence in toad's heart?
- What are the sources of acetylcholine in human body?
- How many systoles and diastoles are present per minute in a person having heart rate of 80 beats/min.?

Q 3.

Gram Stain of bacterial cultures.



A-- Purple coloured bacterial cells



B— Pink coloured bacterial cells

- (a) Identify the bacterial strains demonstrated in the above diagrams A and B in the light of Gram staining. Give two examples of each type mentioning their scientific names.
- (b) Interpret your conclusions drawn above in the light of bacterial ultrastructure.
- (c) Describe what happens at each step in the Gram staining procedure stating the importance of each steps.
- (d) Answer the following questions **(ANY FOUR)**:
- What is bright-field microscopy? Mention its limitation.
 - What is the advantage of using oil-immersion lens?
 - State the magnification under which you have observed the Gram stained bacterial cells in your class.
 - Why do we heat-fix the bacterial smear?
 - What will be result of Gram staining of Gram-positive bacteria if it is pretreated with lysozyme?

6+6+10+(4X2) = 30
