



বিদ্যাসাগর বিশ্ববিদ্যালয়

**VIDYASAGAR UNIVERSITY**

**M.Sc. Examinations 2020**

**Semester IV**

**Subject: HUMAN PHYSIOLOGY**

**Paper: PHY – 494**

(Practical)

**Full Marks: 50**

**Time: 3hrs.**

*Candidates are required to give their answers in their own words as far as practicable.*

**Unit: PHY 494.1**

**(Practical)** [Answer any one question]

1. a) Write the Einthoven's principle of ECG recording. b) Describe the process of ECG recording of human subject with the help of bipolar limb leads. c) Write down the clinical importance of ECG recording. d) What are basic difference between the unipolar limb leads and chest leads? e) Why gel is used during ECG recording? Write the chemical composition of this gel.
2. a) Describe the methodology of  $VO_2$  max by Queen's college test. b) Write the principle of it. c) How could you measure the hearing threshold of a subject through a audiometer.
3. a) Describe a suitable methods for the determination of body fat percentage and desire body weight. b) Write down the physiological importance of body fat percentage. c) Describe with a suitable diagram the instrumental components of HPLC machine. d) State the basic principle of HPLC methods.
4. a) Write down the determination methods of critical fusion frequency (CFF). b) What is the basic principle of it? c) Discuss the process of visual acuity measurement. d) Write the clinical importance of visual acuity measurement.
5. a) Write down the surgical procedure of Vago-sympathetic Trunk isolation from a toad. b) Describe the experimental process of vagal stimulation and its effects on toad model. c) What is vagal escape? Write its biological significance.
6. a) Demonstrate the effect of UV rays on cellular proteins, DNA and cell membrane. b) Write the surgical methods of decerebration of a frog CNS. c) Experimentally how could you measure the reflexes in spinal and decerebrate frog?



**Unit: PHY 494.2**

**(Practical)**

1. Write down the **principle, procedure including estimating calculation (if any) and underlying mechanisms justifying differential observations** obtained in *any one* of the following experiments.
  - A. Identification of catalase activity for supplied bacteria.
  - B. Determination of acid phosphatase activity in the supplied tissue sample.
  - C. Antibiogram analysis of supplied bacteria.
  - D. Amplification of a target DNA by polymerase chain reaction and subsequent identification of amplified DNA by agarose gel electrophoresis.
  - E. Demonstration of delayed type of hypersensitivity response.
  - F. Identification of protease activity of supplied bacteria.
  - G. Identification of antibody by Ouchterlony Double Diffusion technique.
  - H. Measurement of hormone by ELISA technique.
  - I. Study of estrous cycle after administration of synthetic estrogen.
  - J. Determination of concentration of an antigen through SRID.
  - K. Determination of urease activity for supplied bacteria.
  - L. Study of the effect of cryptorchidism on testicular cholesterol.