

V. P. & R. P. T. P. SCIENCE COLLEGE  
VALLABH VIDYANAGAR – 388 120  
Internal Examination -2017  
US06CINV04: SPECTROSCOPY AND BIOMEDICAL INSTRUMENTATION

9<sup>th</sup> March, 2017, 11:00 to 12:30 pm

Total Marks: 25

- Q-1. **Multiple Choice Questions-** [3]
- (i)  $E = hv$ ,  $v$  represents.....  
(a) wavelength (b) velocity (c) energy (d) frequency
- (ii) Infrared region extends from ..... to ..... in electromagnetic spectrum.  
(a)  $0.3 \mu$ ,  $0.8 \mu$  (b)  $0.8 \mu$ ,  $200 \mu$  (c)  $0.1 \mu$ ,  $0.3 \mu$  (d) none
- (iii) ECG is common example of ..... signal.  
(a) bioacoustic (b) biochemical (c) bio-optical (d) bioelectric
- Q-2. **Answer any two** [4]
- (a) What type of Instrument related errors occur in Spectrometer?
- (b) List the materials used for prism construction.
- (c) What is the use of needle electrodes?
- Q-3. Draw block diagram of Absorption Instrument and explain each block briefly. [6]
- OR
- Q-3. Describe double beam filter photometer. [6]
- Q-4. Write a note on Radiation sources in IR ranges. [6]
- OR
- Q-4. Describe Optical Null type double beam Infrared spectrophotometer. [6]
- Q-5. Explain with neat block diagram principle of ECG machine. [6]
- OR
- Q-5. Discuss the basic principle of Bio-potential generation with sequential figures and PQRS complex graph. [6]

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