

RAN-2303080102060001
M.Sc. (Sem. - II) Examination September - 2025
Physics (Paper - PH-426)
Electronic and Biomedical Instrumentation
Time: 2 Hours]
[Total Marks: 30
સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book
- (2) Assume the data if required.
- (3) Figures to right hand side indicate marks of each question.
- (4) Attempt any two of each question

Seat No.:

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Student's Signature

- Q.1.** (a) (i) Explain the different types of probes used in CRO circuits. 6
 (ii) Explain the measurement of resistance by digital multimeter. 2
- (b) (i) Explain how the digital voltmeter performs the following function with respect to DC Voltage measurement 5
 (1) Auto ranging
 (2) Polarity detection
 (3) Auto zeroing
 (ii) Draw the internal structure of a CRT and explain it. 3
- (c) (i) A $3\frac{1}{2}$ digit voltmeter is used for voltage measurements. 4
 (1) Find its resolution
 (2) How would 13.98 V be displayed on 10 Volt range.
 (3) How would 0.4873 V be displayed on 1 Volt range.
 (4) How would 0.4873 V be displayed on 10 Volt range.
 (ii) Explain the following in basic CRO circuits. 4
 (1) Intensity modulation
 (2) Positioning control
 (3) Focus control
 (4) Intensity control
- Q.2** (a) (i) What is Biopotential? How is it measured? 4
 (ii) Explain the working principle of CT scan. 3
- (b) (i) Describe in brief, unipolar lead and bipolar leads used in ECG. 3
 (ii) What is bio-feedback? How it is used for relaxation of patient? 4
- (c) Explain the indirect and direct method of blood pressure measurement. 7