

**B.Sc. (Part—III) Semester—V Examination****5S : ELECTRONICS****(Measuring Instruments)**

Time : Three Hours]

[Maximum Marks : 80

**Note :—** (1) Question No. 1 is compulsory.

(2) Draw diagrams wherever necessary.

1. (A) Fill in the blanks :—

- (i) The transducer converts Physical quantity into equivalent \_\_\_\_\_ .
- (ii) LVDT stands for \_\_\_\_\_ .
- (iii) Pyrometer uses thermal radiation for measurement of \_\_\_\_\_ .
- (iv) DCM stands for \_\_\_\_\_ .

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(B) Choose the correct alternative :—

- (i) Electrical activity of brain is measured by using :
  - (a) ECG
  - (b) EMG
  - (c) EEG
  - (d) None
- (ii) Free running multivibrator is also known as \_\_\_\_\_ multivibrator.
  - (a) Monostable
  - (b) Bistable
  - (c) Astable
  - (d) None
- (iii) RTD stands for :
  - (a) Resistance temp. detector
  - (b) Resistance thermal detector
  - (c) Radiant temp. detector
  - (d) Resistance temp. device
- (iv) Output voltage at null position of LVDT is known as \_\_\_\_\_ .
  - (a) Null Voltage
  - (b) Residual Voltage
  - (c) Effective Voltage
  - (d) None

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(C) Answer in one sentence each :

- (i) What is the function of reset input in IC555 ?
- (ii) What is actuator ?
- (iii) What is transducer ?
- (iv) What is Pyrometer ?

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2. (a) Explain construction and working of capacitive transducer. 6  
 (b) State classification of transducers and explain with examples. 6
- OR**
- (p) Draw block diagram of generalised instrumentation system and explain each block. 6  
 (q) Explain measurement of displacement using potentiometer. 6
3. (a) Explain measurement of temperature using thermistor. 6  
 (b) Explain construction and working of total radiation pyrometer. 6
- OR**
- (p) Explain LM34 and its features. 6  
 (q) Explain temperature measurement using thermocouple. 6
4. (a) Explain IC 555 with neat block diagram. 6  
 (b) Explain working of IC 555 as astable multivibrator. 6
- OR**
- (p) Draw and explain block diagram of PLL. 6  
 (q) Explain working of monostable multivibrator using IC 555. 6
5. (a) Explain segmental and dot matrix display. 6  
 (b) Draw block diagram of digital frequency meter and explain function of each block. 6
- OR**
- (p) Draw functional diagram of magnetic tape recorder and explain its working. 6  
 (q) Explain working of ramp type digital voltmeter. 6
6. (a) Explain fiber optic temperature sensor. 6  
 (b) Explain construction and working of strain gauge. 6
- OR**
- (p) Explain bent beam electro-thermal actuator. 6  
 (q) Explain working of phototransistor as optical sensor. 6
7. (a) Explain the working of EEG with neat block diagram. 6  
 (b) Explain working of blood pressure meter. 6
- OR**
- (p) Draw block diagram of ECG machine and explain each block. 6  
 (q) Explain pulse oximeter. 6