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Time : 2 Hours**Industrial Electronics & Instrumentation****Subject Code**

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Total No. of Questions : 5**(Printed Pages : 4)****Maximum Marks : 50**

INSTRUCTIONS :

- (i) All questions are compulsory.
- (ii) Answer each question on a fresh page.
- (iii) Figures to the right indicate full marks.
- (iv) Draw neat diagrams wherever necessary.
- (v) Write the number of each question and sub-question clearly.

1. (A) Fill in the blanks :

2×1=2

- (i) Photo cell converts light energy in to
- (ii) Line regulation is percentage change in output voltage to change in

(B) Answer the following in brief :

2×3=6

- (i) With the help of a neat block diagram, explain the working of DC to DC converter.
- (ii) With the help of a neat diagram, explain over light detector circuit using SCR.

- (C) Answer the following : 1×2=2
- (i) With the help of a neat constructional diagram, explain working of pn-junction photo diode.
2. (A) Define the following : 2×1=2
- (i) Transducer
- (ii) Photo conductive effect.
- (B) Answer the following in brief : 2×3=6
- (i) Draw the block diagram of CRO. Explain, delay line circuit and power supply.
- (ii) With the help of a neat diagram, explain the range extension of DC voltmeter.
- (C) Answer the following : 1×2=2
- (i) State any *two* applications of Astable multivibrator using timer IC NE555 and write its output time period formula.
3. (A) Fill in the blanks : 2×1=2
- (i) When force or pressure is applied to the piezoelectric crystal, it produces
- (ii) The instrument used to measure the intensity of light radiation is called

(B) Answer the following in short : 3×1=3

(i) With the help of block diagram. Explain AF signal generator.

(C) Answer the following in detail : 1×5=5

(i) With the help of block diagram explain metal detector and state any *two* applications of it.

Or

(i) Draw the block diagram of electrocardiogram (ECG) and explain the function of each block.

4. (A) Answer the following in *one* word/sentence each : 2×1=2

(i) State the frequency calculating formula using CRO.

(ii) State the function of electron gun assembly in cathode ray tube (CRT).

(B) Answer the following : 1×3=3

(i) Draw the pin configuration diagram of timer IC NE555 and explain the function of pin no. 2 and pin no. 7.

(C) Answer the following : 1×5=5

(i) State any *two* applications of DC series motor and with the help of circuit diagram explain the flux control method used to control the speed of it.

Or

- (i) State any *two* applications of DC shunt motor and with the help of circuit diagram explain the armature resistance control method used to control the speed of it.

5. Answer the following : 2×5=10

- (1) State any *two* examples of active transducer and passive transducer.
- (2) Draw a neat labelled diagram of capacitive transducer and state any *two* applications of it.
- (3) Why should resistor be connected in series with LED ? Name *two* types of LED lamp driver circuits.
- (4) State any *two* points of comparison between LED and LCD.
- (5) State any *two* advantages of electronic timer over mechanical timer.