2025 II 24 **0930** **Seat No.** | | | | | |

Time : 2 Hours

INDUSTRIAL ELECTRONICS AND INSTRUMENTATION

Subject Code

V	4	3	3	4

Total No. of Questions : 23 (Printed Pages : 4) **Maximum Marks : 50**

INSTRUCTIONS : (*i*) There are four sections in the question paper (A, B, C and D) consisting of **23** questions.

(*ii*) In section A, there are eight questions of which Q. Nos. 1 to 4 are multiple choice questions, Q. Nos. 5 and 6 are to be answered in one/two words, phrase or figure and Q. Nos. 7 and 8 are to be answered in one sentence each.

(*iii*) All questions are compulsory, however there is internal choice for Q. Nos. 20 and 23.

(*iv*) Figures to the right indicate marks allotted to each question.

(*v*) Write the number of each question clearly on the answer-book.

SECTION–'A'

1. A photo diode is also known as 1

   - Photo detector
   - Light dependent resistor
   - Photo tube
   - Photo relay

2. The maximum input voltage that can be connected to IC 7824 is 1

   - +24 V
   - + 35 V
   - + 40 V
   - + 50 V

3. The output waveform of an astable multivibrator using IC555 is 1

   - square wave
   - rectangular wave
   - sine wave
   - saw tooth wave

4. An electronic instrument used to detect metal in hidden places 1

   - tong tester
   - metal detector
   - anemometer
   - LVDT

5. Name the IC that can be used as an adjustable positive output voltage regulator. 1

6. State *one* application of a radio frequency signal generator. 1

7. State any *two* applications of SCR. 1

8. Define instrumentation system. 1

SECTION–'B'

9. With the help of a labelled diagram explain how to convert D' Arsonval meter into an ammeter. 2

10. State any *four* features of IC555. 2

11. State *two* points of difference between SCR and TRIAC. 2

12. Draw a labelled diagram of a series dc motor and state any *one* application of the same. 2

13. State the functions of cathode and heater in the electron gun assembly of a cathode ray tube. 2

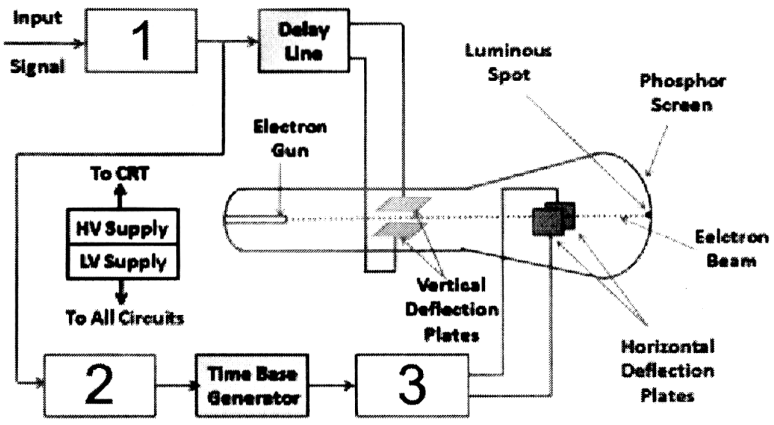
14. Explain the working principle of a permanent magnetic moving coil meter. 2

SECTION–'C'

15. Briefly explain the working of a linear variable differential transducer (LVDT). 3

16. Define photo resistive effect. Draw a labelled diagram of a LDR and also state any *one* application of it. 3

17. The following is a block diagram of a CRO. Write down the names of the missing blocks. 3



18. With the help of a block diagram explain the working of an AF signal generator. 3

19. State any *three* differences between an online UPS and an offline UPS ? 3

20. With the help of a labelled diagram explain the working of a bonded strain gauge. 3

Or

With the help of a labelled diagram explain the working of an unbonded strain gauge. 3

SECTION–'D'

21. With the help of a block diagram explain the working of an electrocardiogram. 4

22. Explain the functions of the following parts of a DC motor : 4

(*a*) yoke

(*b*) armature winding

(*c*) carbon brushes

(*d*) bearings.

23. Draw the pin configuration diagram of IC555 and state the function of the following pins : 4

(*a*) Pin 1

(*b*) Pin 3

(*c*) Pin 8.

Or

With the help of a neat circuit diagram explain the working of an astable multivibrator using IC555 and also state the formula for time period. 4