



Seat No \_\_\_\_\_

[3/A-2]

Sardar Patel University  
S.Y.B.Sc. (Semester-IV) Examination 2022 NC  
Date & Day: 15/10/2022, Saturday  
Subject Code: US04EELE02, Instrumentation  
Time: 12:30 pm to 02:30 pm

No. of Pages. 02

Note: - Figures to the right indicate marks.

Total Marks: 70

Q - 1 Choose the correct answer.

[10]

1. Which of the following does not change in an ordinary transformer?
  - a) current
  - b) Frequency
  - c) voltage
  - d) all of above
2. In an ideal transformer \_\_\_\_\_.
  - a) winding have no resistance
  - b) core has no losses
  - c) core has infinity permeability
  - d) all of the above
3. The abbreviation SSR stands for \_\_\_\_\_.
  - a) simple solid relay
  - b) solid state relay
  - c) solid system relay
  - d) solid standard relay
4. Contactors can be obtained with coils designed for use on \_\_\_\_\_ than most relays.
  - a) higher voltages
  - b) lower voltages
  - c) same voltages
  - d) None
5. A \_\_\_\_\_ may be used as a transducer for converting mechanical displacement to an electrical output.
  - a) wire wound potentiometer
  - b) capacitive transducer
  - c) inductive transducer
  - d) piezoelectric transducer
6. Which of the following is not a self-generating type of transducer?
  - a) Bourdon tube of a pressure gauge
  - b) Thermocouple
  - c) LVDT
  - d) Photo voltaic cell
7. \_\_\_\_\_ as the ratio of the O/p signal to a change in the input signal.
  - a) Error
  - b) Precision
  - c) Accuracy
  - d) Sensitivity
8. One of the following can acts as an inverse transducer : \_\_\_\_\_.
  - a) inductive transducer
  - b) L.V.D.T
  - c) capacitive transducer
  - d) piezoelectric crystal
9. LVDT windings are wound on \_\_\_\_\_.
  - a) ferrite
  - b) copper
  - c) aluminum
  - d) steel sheet
10. In relay, the NC stands for \_\_\_\_\_.
  - a) Normally Open
  - b) Normally Operate
  - c) Not Open
  - d) Normally Closed

(P.T.O)

**Q - 2 Do as Directed. (True/False and Fill in the blanks)**

[08]

1. A transformer transforms \_\_\_\_\_.
2. In 4 pin relay, normally opened condition occurs when pin \_\_\_\_\_ are open.
3. The non electrical quantity is converted in to electrical signal is called as a \_\_\_\_\_.
4. Resistance potentiometer consists of \_\_\_\_\_.
5. Self-generating type transducer is called as passive transducer. True/False
6. A circuit that changes a code into a set of signals is called encoder. True/False
7. A relay is electromechanically switch. True/False
8. The value of form factor is 1.01. True/False

**Q - 3 Answer in short. (Any Ten)**

[20]

1. Note down the equation of electro motive force (emf) for transformer.
2. A 25KVA, 1  $\phi$  transformer has 250 turns on the primary and 40 turns on the secondary winding. The primary is connected to 1500 volt, 50 Hz mains.
3. Give the ideal transformer characteristics on no load circuit.
4. List out the applications of relay.
5. Draw the circuit diagram for normally closed relay.
6. List out the different types of SSRs.
7. Give the uses of LVDT.
8. Differentiate between active and passive transducer.
9. List out the types of displacement transducer.
10. Define : Decoder
11. Define : transducer.
12. What do you mean by contractors.

**Q - 4 Attempt any Four Questions.**

[32]

1. Explain the principle, construction and working of the transformer.
2. Write a short note on Shell type transformer.
3. Discuss in detail construction and working of relays with diagram.
4. Write a note on: Solid state relay (SSR).
5. Write a short note on dynamic characteristic of transducer.
6. Discuss in detail about the static characteristic of transducer.
7. Explain operation of Piezo-electric transducer.
8. Discuss the Principle, construction and working of Linear Variable Differential Transducer (LVDT).

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(2)