

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2125)

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B. Tech 4th Semester Examination
Electronic Measurement & Measuring Instruments (OS)
EC(ID)-4002

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, selecting one question from each of the sections A, B, C, D and section E which is compulsory. All questions carry equal marks. (20)

SECTION - A

1. Draw and explain the block diagram of general purpose CRO. Explain how frequency and phase angle are measured? (20)
2. Explain the operation of:
 - (a) Q meter
 - (b) Electronic voltmeter. (20)

SECTION - B

3. (a) List the applications of spectrum analyzer. (10)
(b) Draw the block diagram of a function generator. What are the various pulse parameters used in the specifications of signal generator? (10)
4. (a) Explain the difference between a power transformer and an instrument transformer. (10)

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- (b) A 100/5A current transformer having a rated burden of 25VA has an iron loss of 0.4W and a magnetising current of 2A. Calculate its ratio error & phase angle error when supplying rated output current to a meter having a ratio of resistance to reactance 5. (10)

SECTION - C

5. (a) Describe the principle of operation of LVDT and its characteristic. (10)
(b) Discuss how you select a transducer for a given application. (10)
6. With the help of block diagram, explain the function of important organs of data acquisition system for an application. (20)

SECTION - D

7. Discuss the types of elementary systems and applications. (20)
8. (a) What do you mean by indicating instruments?
(b) Where do we prefer using nixie tube?
(c) Explain how alphanumeric display is possible with the help of seven segment LED's. (20)

SECTION - E

9. Explain:
 - (a) The role of A/D converter for Data Acquisition System.
 - (b) The difference between a sensor & a transducer.
 - (c) The principle of operation of a semiconductor strain gauge.

- (d) The necessity of recorders.
- (e) Principle operation of nixie tube.
- (f) What do you mean by telemetry?
- (g) How does a wave analyzer differ from a harmonic distortion analyzer?
- (h) What are the various applications of CRO?
- (i) What advantage an electronic voltmeter has over non-electronic voltmeter?
- (j) What are the applications of CT and PT?

(2×10=20)