Exam.Code:0927
Sub. Code: 33644

2076

B.E. (Electronics & Comm. Engineering)

Third Semester

EC-306: Electronics Measurement and Instrumentation

Time allowed: 3 Hours Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit. Draw the diagrams wherever required.

x-x-x

I. Answer the following questions:-

a) Describe the working of a capacitive level sensor.

b) Define Transducer? What are the various characteristics of a transducer?

c) Write applications of Spectrum Analyzer.

d) Discuss the various protection systems used in electrical circuits.

e) Explain the working principle of a moving coil instrument. (5x2)

UNIT - I

II. (a) Explain the working principle, construction, and applications of an Ohmmeter.

(b) Discuss how an ohmmeter is used to measure resistance in electrical circuits and the factors that can influence its accuracy. (7+3)

III. (a) Explain the working principle and construction of a Cathode Ray Oscilloscope (CRO). Discuss its main components, their functions, and how they work together to produce a visual display of electrical signals.

(b) How measurement of frequency is made with the help of a CRO? (6+4)

IV. (a) Discuss various Errors in Measurements, Provide practical examples from electrical and instrumentation systems where these errors can significantly impact the performance and reliability of measurements.

(b) Discuss how engineers can ensure the accuracy and reliability of their measurements in such systems. (5+5)

P.T.O.

UNIT - II

V. (a) Discuss the role of LabVIEW or other graphical programming environments in virtual instrumentation, detailing how they provide an intuitive interface for data acquisition, signal processing, and system control. Also, explain how virtual instrumentation can be applied in industries such as telecommunications, manufacturing, and medical diagnostics.

(b) Explain local and global variable with an example. (7+3)

VI. What is the principle of feedback control in instrumentation? Explain the working of a closed-loop control system with a practical example. Discuss the differences between positive and negative feedback and their effects on the stability and performance of control systems. (10)

VII. Explain the working principle, construction, and applications of a Spectrum Analyzer. Discuss the different types of spectrum analyzers, their key features, and how they are used in the analysis of signals across various frequency ranges. (7+3)

x-x-x