2063
B.E. (Electrical and Electronics Engineering)
Third Semester
EC-306: Electronic 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 Part. Missing data (if any) can be appropriately assumed.*

x-x-x

Q1. **Explain in brief.**
A) Draw the series type Ohmmeter and explain its operation.
B) Define and derive static and dynamic error. (02)
C) Define deflection sensitivity of a CRT. (02)
D) List out difference between active and passive transducer in detail. (02)
E) Identify the role of VI in the engineering process. (02)
(02)

Part A

Q2. A) Explain the functional blocks of a measurement system with neat diagram. Also explain the types of errors. (05)

B) Explain the following terms in detail (i) Accuracy (ii) Resolution (iii) Precision (iv) Expected value. (05)

Q3. A) Draw the circuit diagram of Schering's bridge and explain the operation of it. (05)

B) An unbalanced wheat stone bridge has the following resistances with R_1=1 KΩ, R_2=2.5 KΩ, R_3=3.5 KΩ, R_4=10 KΩ with a battery voltage of 6V and a galvanometer resistance of Rg=300 Ω. Calculate the current through the galvanometer? (05)

Q4.A) An electrical deflected CRT has a final anode voltage of 2000Vand parallel deflecting plates of 1.5cm long and 5mm apart. If the screen is 50cm from the centre of the deflecting plates. Find: (i) Beam speed (ii) Deflection sensitivity of the tube (iii) Deflection factor of the tube. (05)

B) Explain the measurement procedure of Lissajous patterns with one suitable example. (05)

PART B

Q5. A) Derive the expression for gauge factor of a strain gauge. (05)
B) What are pressure transducers? Explain about capacitive pressure transducer. (05)

Q6(A) What are the two types of anemometer available for liquid flow measurement? Explain the principle and operation of hotwire anemometer. (05)

B) Enumerate the editing and debugging techniques in Lab VIEW programming. (05)

Q7. A) With a neat diagram, explain the layers of virtual instrumentation software and the software and hardware role. (05)
B) Draw the block diagram of a standard DAS and explain the function of each block. (05)

x-x-x