

**YMCA UNIVERSITY OF SCIENCE AND TECHNOLOGY, FARIDABAD**  
**B.TECH. EXAMINATION**  
**ELECTRONIC INSTRUMENTATION (E-204)**

Time : 3 hrs

M. Marks : 60

**Note:** Part A is compulsory. In Part -B, any 4 questions may be answered. Assume appropriate addresses / data, you deem fit.

**Part - A**

1. Give short Answers to following, not exceeding 40 words.
  - i. What is meant by multiplexing in Data acquisition. (2)
  - ii. Define Q-factor of the coil. (2)
  - iii. What is frequency division multiplexing. (2)
  - iv. Why do we connect secondary winding of LVDT in differential configuration (2)
  - v. Define accuracy and sensitivity of a measurement system. (2)
  - vi. What is an inverse transducer. (2)
  - vii. Enlist 4 active transducers and their applications. (2)
  - viii. What is CMRR in an signal conditioning circuit. (2)
  - ix. Define Gauge factor of a strain gauge. (2)
  - x. Define resolution of an ADC. (2)

**Part - B**

2. Enlist various signal conditioning circuits. Derive the expression for an integrator circuit. (10)
3. a) Draw the block diagram of a spectrum analyser and explain its working. (5)  
 b) Draw the block diagram of a function generator and explain each block.
4. a) Explain the working of Time base Generator of an Oscilloscope and show the wave forms. (5)  
 b) What is meant by Harmonics . Explain the working of Harmonic Analyser. (5)
5. a) A 4 ½ digit voltmeter is used for voltage measurement (5)  
 i) Find its resolution ii) How would 12.98 be displayed in 10 V range  
 iii) How would 0.6973 volt be displayed in 1V range  
 b) Explain the FET voltmeter and compare it with Transistorised voltmeter (5)
6. a) Draw the block diagram of a Data Acquisition system and explain. (5)  
 b) Define Q of a coil. How is Q measured. (5)
7. a) Derive the expression for gauge factor for a strain gauge. (5)  
 b) Compare LED and LCD display devices. (5)