

**SVIS 304 A -16**  
**B.Sc. VIth Semester Degree Examination**  
**Electronics**  
**(Instrumentation and microcontroller)**  
**Paper - 6.2**

Time : 3 Hours

Maximum Marks : 80

**Instructions to candidates:**

- 1) Answer All the questions from section - A
- 2) Answer any Five questions from section B and Four from section-C

**Section -A**

1. Choose the correct answer (5×1=5)
  - i) Pyrometers are the instruments used to measure
    - a) low temperature
    - b) very high temperature
    - c) Electrical quantities
    - d) None
  - ii) The full wave precision rectifier rectifies signals of
    - a) Medium frequency
    - b) High frequency
    - c) Low frequency
    - d) both (a) and (b)
  - iii) The 8051 microcontroller is
    - a) 20 pin IC
    - b) 40 pin IC
    - c) 60 pin IC
    - d) 80 pin IC

iv) The result of the instruction MUL AB is stored in

a) Register banks

b) B register

c) Accumulator

d) None

v) ADC 0808 has \_\_\_\_\_ analog input channel

a) Two

b) Four

c) Six

d) Eight

2. Fill in the blanks

(1×5=5)

i) The strain gauge works on the principle of change in \_\_\_\_\_ of a wire under strain

ii) In a peak detector CRf is lesser than or equal to \_\_\_\_\_

iii) The 8051 microcontroller has \_\_\_\_\_ timers

iv) 8051 microcontroller has \_\_\_\_\_ mathematical flags and \_\_\_\_\_ user defined flags.

v) The DPTR is of \_\_\_\_\_ bit register

3. State True or False

(5×1=5)

i) Displacement transducers works on the principle of transduction

ii) LVDT is modified version of plunger type Sensor.

iii) All the ports pins in 8051 are dual functional

iv) The 8051 microcontroller has 4k bytes of RAM.

v) Both the timers in 8051 micro-controller is of 16-bit.

## Section -B

Answer any Five of the following.

(5×5=25)

4. Write the advantages of LVDT

5. Explain peak detector circuit

6. Draw the block diagram of lock in amplifier and explain

7. Write the difference between microprocessor and microcontroller
8. Explain the structure of internal RAM of 8051 microcontroller
9. Write a program to find 1's and 2's compliment of a number 52H.
10. Explain the bit format of TMOD register

**Section -C**

Answer any **Four** questions of the following

(4×10=40)

11. Define strain gauge and explain the types of strain gauges
12. With the help of circuit diagram explain the working of instrumentation amplifier
13. Explain the addressing modes of 8051 microcontroller
14. Explain the architecture of 8051 microcontroller
15. Explain ADC interfacing using 8051 microcontroller
16. Write a note on
  - a) Thermistor
  - b) Phase sensitive detector