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Roll No. _____ 'ages : 3

SVIS-305-A-18
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***
3. ***Answer any four questions from Section-C***

Section-A

1. Choose the correct Answers **(5×1= 5)**

i) Strain and pressure gauges are____type transducers

a) Variable resistance b) Voltage generating

c) Variable inductance d) Voltage divider

ii) A filter is said to be wide band pass if its Q is

a) Greater than 1 b) Greater than 10

c) Less than 1 d) Less than 10

iii) 8051 μc operates with _____frequency

a) 3MHz b) 6MHz

c) 12MHz d) 18MHz

iv) The conditional flag "ov" in 8051 μc indicates

a) Over voltage b) Over flow

c) Over Parity d) Over all

v) Timer 0 and 1 of 8051 μc are of ____bit registers

a) 4-bit b) 8-bit

c) 16-bit d) 32-bit

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2. Fill in the blanks (5×1=5)

i) Helical tubes are ___transducers

ii) In Resistance type temperature sensors, the resistance ___with increase in temperature

iii) The output of an integrator circuit ___wave when excited by square wave

iv) ____instruction is used after ADD instruction to convert sum of two numbers into BCD

v) The 8051 μc has ___ number of I/O ports.

3. State True or False (5× 1= 5)

i) PN junction diode can be used as solid state sensor

ii) LVDT is a passive transducer

iii) The primary transducers are called as sensors

iv) 8051 μc is 8-bit microcontroller

v) DAC is used to convert analog signal to digital signal

Section-B

Answer any **five** of the following (5× 5= 25)

4. Define transducer explain passive and active transducer

5. Write a note on solid state sensor

6. Derive an expression for the output voltage of an opamp integrator circuit

7. Explain bit pattern of PSW register of 8051 μc

8. Write an assembly language programme to add two 8-bit numbers and store the result in R_6 register

9. Write the features of 8051 microcontroller

10. Explain bit patterns of TMOD register

Section-C

Answer any **FOUR** of the following (4× 10= 40)

11. What are strain gauges? Explain different types of electrical strain gauges.

12. a) Explain peak detector circuit (5+5)

b) With circuit diagram explain phase sensitive circuit

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13. Explain registers of 8051 μc

14. a) Classify the instruction of 8051 μc based on length of instructions **(2+8)**

    b) Explain the instructions

        i) CLR C

        ii) ADD A@Ri

        iii) Mov 30H, # 20H

        iv) DEC A

15. Explain ADC interfacing with 8051 μc

16. Write a note on **(5+5)**

    a) Thermister

    b) Active filters

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