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**SVIS-N- 323 A-19**
**B.Sc. VI Semester Degree Examination**
**ELECTRONICS**
**(Signal Conditioners and Microcontrollers)**
**Paper - 6.2**
**(NEW)**

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 answer:                                    (5×1=5)

    i.   Peak detector, determines the

        a)   Average value of the input signal

        b)   Max. value of the input signal

        c)   RMS value of the input signal

        d)   None of the above

    ii.  Which of the following is an integrating type ADC?

        a)   Flash type

        b)   Tracking converter

        c)   Counter type

        d)   Dual slope

    iii. With every PUSH of data onto the stack the stack pointer

        a)   Increases

        b)   Decreases

        c)   Both (a) & (b)

        d)   None of the above

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iv. 8051 microcontroller has -------, 16 bit registers.

    a) Two

    b) Three

    c) One

    d) Four

v. When some arithmetic operation is executed, then the flag bits of ---------- register is affected.

    a) DPTR

    b) PSW

    c) SP

    d) PC

**2.** Fill in the blanks:                                      (5×1=5)

    i. Precision rectifier is also called as --------- diode.

    ii. R-2R ladder network is used for ----------- conversion.

    iii. The 8051 microcontroller is of --------- pin package.

    iv. The DPTR is of ----------- bit register.

    v. The 8051 has ------- I/O ports.

**3.** State True or False:   http://www.karnatakastudy.com     (5×1=5)

    i. Isolation amplifier is also called a unity gain follower.

    ii. Dual slope integrating type ADC uses only Pn diodes.

    iii. A LABEL is used to name a single line of code.

    iv. ROM is used for storing program memory.

    v. The 8051 has two 16bit counters/timers.

## SECTION-B

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

**4.** Explain the operation of Isolation amplifier designed using Op-Amp.

**5.** Explain a 3-bit DAC using binary weighted resistive network.

**6.** List out the features of 8051 microcontroller.

**7.** With bit pattern, explain the working of PSW register.

**8.** On the basis of operation, classify the 8051 instruction set.

**9.** Write an assembly language program (ALP) to add two 8-bit numbers.

**10.** Explain bit pattern of TMOD register.

## SECTION -C

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

11. What is rectification? With a neat circuit diagram, explain the working of precision half wave rectifier using Op-Amp.

12. With a neat circuit diagram, explain dual slope integrating type ADC.

13. Draw the functional block diagram of 8051. Explain function of each block.

14. Write a note on various registers of 8051.

15. Explain any five (5) data transfer group of instruction, with example.

16. Explain interfacing of 8051 with ADC 0804.

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