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VI Semester B.Sc. Degree Examination, August/September - 2023

ELECTRONICS - VII

EL-601T:Communication - II

Paper : VII

(CBCS Scheme Freshers 2022-23 onwards)



Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

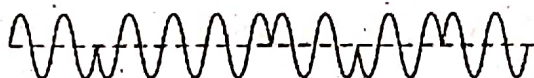
1. Answer **All** questions from Part A, any **Five** questions from Part B and any **Four** questions from Part C.
2. Answer **All** questions part A in any **One** page, Answering the same questions multiple times will not be considered for evaluation.

Note: It is required to answer **All** the questions of Part - A, in any **one** page and to be answered only once. In this part, answering the same question multiple times will not be considered for evaluation.

PART - AAnswer **all** the sub divisions.

(15×1=15)

1. i. Waveform shown represents _____



- | | |
|--------|--------|
| a. PWM | b. PAM |
| c. PSK | d. FSK |
- ii. The sequence of operations in which PCM is done is.
- | | |
|------------------------------------|-----------------------------------|
| a. Sampling, Quantizing, Encoding. | b. Quantizing, Encoding, Sampling |
| c. Quantizing, Sampling, Encoding. | d. None of the above |
- iii. Cross talk in digital transmission can be reduced with the use of.
- | | |
|-------------------|----------------------|
| a. Equalizers | b. Suppressors |
| c. Coaxial cables | d. None of the above |
- iv. Echo in RADAR refers to.
- | | |
|-----------------------|---------------------|
| a. Transmitted signal | b. Modulated signal |
| c. Demodulated signal | d. Reflected signal |

[P.T.O.]



- v. The main disadvantage of CW Doppler RADAR is that.
- It does not give the target range
 - It does not give the target velocity
 - A transponder is required at the target
 - It does not give the target position
- vi. With reference to the Satellite orbit, 'Apogee' is the.
- Farthest point in the orbit
 - Nearest point in the orbit
 - Point in the parking orbit
 - Name of the boost motor that puts the satellite in the right parking slot
- vii. For Global communication, the minimum number of satellites needed in Geo stationery orbit, is.
- | | |
|------|------|
| a. 1 | b. 3 |
| c. 6 | d. 4 |
- viii. In satellite systems, the uplink frequency is greater than downlink frequency. Is it true?
- | | |
|-------------------------|---------------------------|
| a. Yes | b. No |
| c. True only in DOMSATs | d. True except in DOMSATs |
- ix. The core of a fiber optic is surrounded by.
- | | |
|----------------------|-----------------------|
| a. Wire braid shield | b. Kevlar |
| c. Cladding | d. Plastic insulation |
- x. In an optical fiber, light travels along the fiber due to.
- | | |
|------------------------------|------------------------------|
| a. Total internal reflection | b. Scattering |
| c. Refraction | d. Line of sight propagation |
- xi. To meet the increased traffic in cellular communication, _____ is required.
- | | |
|-------------------------------------|--|
| a. High power Transmitter | b. Chatting and location based service |
| c. Authentication of the subscriber | d. Cell splitting. |
- xii. IMEI number in a Cell phone is the.
- Information of Mobile Equipment Identity
 - International Mobile Equipment Information number
 - International Mobile Equipment Identity number
 - Integrated Mobile Equipment Identity number



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- xiii. Frequency reuse in Cellular communication refers to
- Allotting same frequency to many service providers
 - Sharing the same frequency by different channels
 - Using same frequency everyday.
 - Using the same frequency for both Uplink and Downlink.
- xiv. In cellular communication system, term 'Roaming' refers to
- the ability to use the cell phone outside usual service area
 - the call which is diverted by switching center to new base station
 - the process in which the same set of frequencies can be allocated
 - the ability to use the cell phone within the specified service area.
- xv. Standard form of Wi-Fi is _____
- Wired Fidelity
 - Wired function
 - Wireless Fidelity
 - None of the above

PART - B

Answer any Five questions.

(5×7=35)

- List the advantages and disadvantages of digital communication over Analog communication.
- Derive an expression for maximum range of a RADAR system.
 - Mention the factors affecting the RADAR range. (5+2)
- Draw the block diagram of a pulsed radar system and explain the function of each block.
- Explain different types of orbits for satellite communication. Mention their advantages and disadvantages.
 - Compare TDMA with FDMA for satellite access. (5+2)
- Draw the block diagram of optical fiber communication system.
 - With a diagram, explain the working of Avalanche photo diode. (2+5)
- Write a note on different types of losses in fiber optic communication. (7)
- Draw the OSI model layers for a Networking system and explain the function of each layer.
- Explain GSM and CDMA with respect to cellular communication system.
 - Draw the block diagram of cellular phone handset. (4+3)

[P.T.O.]



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PART - C

Answer any **Four** questions.

(4×5=20)

10. A radio channel has a bandwidth of 5 kHz and 20dB S/N ratio. Calculate the maximum information carrying capacity. What happens to the information carrying capacity if the S/N ratio becomes 30dB.
 11. Write a note on distortion and echo in digital transmission.
 12. a. RADAR is to have a maximum range of 120 kms. What is the maximum allowable pulse repetition frequency for unambiguous reception?
b. Write the applications of RADAR.
 13. Calculate the path loss that occurs in a satellite system which operates with 4GHz at a distance of
 - i. 20000 Km and
 - ii. 36000 Km.
 14. Explain with a block diagram, the operation of C-band satellite transponder.
 15. A glass clad fiber is made with a core glass of refractive index 1.55. Cladding is doped to give a fractional difference of 0.004. Find the Refractive index of cladding, Critical Internal angle of reflection and Numerical Aperture.
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VI Semester B.Sc. Degree Examination, August/September- 2023

ELECTRONICS

Microcontrollers

(CBCS Scheme Freshers 2022-23 Onwards)

Paper : VIII - EL-602T



Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Answer **ALL** the questions from **Part A**, any **FIVE** questions from **Part B** and any **FOUR** questions from **Part -C**.

Note: It is required to answer all the questions of Part-A in any **one** page and to be answered only once. In this Part, answering the same question multiple times will not be considered for evaluation.

PART - AAnswer **All** the sub divisions.

(15×1=15)

1. i. The 8051 Microcontroller has timers and interrupts.
 - a) 2,5
 - b) 3,6
 - c) 5,2
 - d) 6,3
- ii. The only SFR that does not have address is
 - a) SP
 - b) DPTR
 - c) PC
 - d) IP
- iii. The instruction to access the external data memory is
 - a) MOVC
 - b) MOVX
 - c) MOV
 - d) PUSH
- iv. The register used to set the register banks of internal RAM is
 - a) P0
 - b) IE
 - c) SCON
 - d) PSW
- v. Which operator is used to indicate immediate addressing?
 - a) \$
 - b) #
 - c) @
 - d) &

[P.T.O.]

- vi. In 8051 SFR used to set the priorities of the interrupt is?
 - a) IE
 - b) IP
 - c) SBUF
 - d) PCON
- vii. The contents of accumulator after this operation
MOVA, #26H
CPLA
 - a) 54H
 - b) 26H
 - c) D9H
 - d) FFH
- viii. The register used to access external data memory is
 - a) DPTR
 - b) A
 - c) DPH
 - d) DPL
- ix. The total number of flags present in MC 8051
 - a) 4
 - b) 5
 - c) 6
 - d) 7
- x. Serial port interrupt is generated, if bits are set:
 - a) RI, TI
 - b) PSW
 - c) P0, P1
 - d) SCON
- xi. Multifunction Ports in 8051 are :
 - a) P0, P1, P2
 - b) P1, P2, P3
 - c) P0, P2, P3
 - d) P3, P0, P1
- xii. Which of the following instruction is wrong?
 - a) MOVA, # 22H
 - b) MOVR0, A
 - c) MOVR1, R7
 - d) MOVCA, @A+PC
- xiii. Magnitude of the unsigned int data type is
 - a) 0 to 65535
 - b) 0 to 65536
 - c) -32768 to 32767
 - d) -127 to 128
- xiv. _____ is the datatype used to declare SFR Bit data.
 - a) sbit
 - b) sfr
 - c) char
 - d) int
- xv. The size of bit addressable area in internal continuous RAM area is of _____ bytes
 - a) 08
 - b) 16
 - c) 32
 - d) 64



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PART - B

Answer any **FIVE** questions.

(5×7=35)

2. Explain the architectural block diagram of MC 8051.
3. a) List down the salient features of MC 8051.
b) Explain the DPTR register. (5+2)
4. Explain any 5 Arithmetic instructions with examples.
5. Explain the interrupts of MC 8051
6. a) Explain the CALL and RET instructions in 8051 Microcontroller.
b) Write the bit format of TCON Register. (5+2)
7. Explain Bit manipulation logical instructions of MC 8051.
8. With necessary diagram explain the interfacing of 7 segment LED display interface.
9. Explain the salient features of PIC Microcontroller 16F877A. List down its applications.

PART - C

Answer any **FOUR** questions.

(4×5=20)

10. Write an ALP to add two 8 bit numbers stored in Consecutive Memory location 50H and 51H, store the sum and carry in next consecutive memory locations.
 11. Explain the bit format of PSW.
 12. Write an ALP to find the smallest of N numbers stored in memory location from 60H onwards and store the result in 70H.
 13. Write an ALP to find the 2's complement of an 8 bit number.
 14. Write the contents of R2 and A
MOVA, #45H
MOV R0, #38H
ANL A, R0
MOVR2, A
SETB C
ADDC A, R0
MOV 60, A
 15. Write an 8051 C program to monitor the bit P1.5. If it is high, send 55H to P0; otherwise send AAH to P2.
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