

- 16) uses sensors to determine physical characteristics such as temperature, pressure, voltage, frequency at a remote location.
 A) Electromagnetic spectrum B) Signal
C) Telemetry D) All of these
- 17) Satellite, rocket uses ----- system.
 A) Electromagnetic spectrum B) Signal
C) Telemetry D) All of these
- 18) machine scans a photo on other documents and convert it into electronic signals and such signal is sent over the telephone line at the other end of receiving fax machine.
 A) **Fax** B) RADAR
 C) Transmitter D) None of these
- 19) makes use of reflected microwave signal for the purpose of detecting the direction of speed of ships, planes and missiles.
 A) TV B) Modulation device **C) Radar** D) all of these
- 20) is an underwater communication in which audible base band signal uses water as transmission medium.
 A) **SONAR** B) RADAR
 C) Radio waves D) All of these
- 21) The submarine ,ships are use-----to detect the presence of enemy under water .
 A) **SONAR** B) RADAR
 C) Radio waves D) All of these
- 22) The recent more important application of an electronic communication system is the
 A) Telephone **B) internet**
 C) Fax D) all of these
- 23) The main objective of is to provide a free transparent environment that promotes a playing field and facilitates far competition in the market.
 A) Wireless B) landline **C) TRAI** D) none of these
- 24) TRAI is formed in ----- --.
 A) 1998 B) 1997

- C) **1996** D) none of these
- 25) The transmitting antenna converts ----- wave into electromagnetic wave .
 A) sound B) light
 C) **electric** D) none of these
- 26) Electromagnetic waves consist of electric and magnetic field ----- to each other.
 A) parallel B) **perpendicular** C) diagonal D) none of these
- 27) Electromagnetic waves consist of electric and magnetic field travel with speed of ----- .
 A) sun B) moon
 C) **light** D) none of these
- 28) The relation between wavelength and frequency is ----- .
 A) $c = n\lambda$ B) $c = n/\lambda$
 C) $n = \lambda c$ D) none of these
- 29) The range of voice frequencies is in between to
 A) **300Hz, 3000Hz** B) 300 kHz, 3000kHz
 C) 3MHz, 30MHz D) all of these
- 30) The range of VHF is
 A) 3 - 30 GHz B) 300 - 3000 MHz
 C) **3 MHz – 300 MHz** D) All of these
- 31) The range of UHF is
 A) 3 - 30 GHz B) **300 - 3000 MHz**
 C) 3 MHz – 300 GHz D) All of these
- 32) signals are used for guided missiles, to detect stars and other TV remote control applications.
 A) **Infrared** B) UHF
 C) VHF D) SHF
- 33) The visible spectrum range is to
 A) $500A^{\theta}$, $1000A^{\theta}$ B) $1200A^{\theta}$, $1500A^{\theta}$

- 43) ----- minimum number of satellites are required to cover the whole earth's surface
- A) **3** B) 8
C) 4 D) 6
- 44) In satellite communication ----- signals are used for communication
- A) electric B) magnetic
C) light D) **electromagnetic**
- 45) The frequency with which the signal is sent to space is called as -----
- A) **Uplink** B) downlink C) ground wave D) space wave
- 46) The range of uplink frequency in C-band is -----
- A) **5.9 to 6.4 GHz** B) 3.7 to 4.2 GHz
C) 500 MHz D) none
- 47) A geosynchronous orbit is located at ----- kilometers above the earth.
- A) **35786** B) 25786
C) 30786 D) 24786
- 48) Single geostationary satellite covers ----- of earth's surface
- A) 30 % B) 20%
C) 40% D) 50%
- 49) ----- is sky wave frequency range
- A) 20-30 MHz B)
10000MHz
C) 1KHz D) **30-40 MHz**
- 50) A higher the satellite orbit the satellite moves -----
- A) faster B) **slower**
C) medium speed D) none

2. Write brief answers of the following (any two)

[20] Long Answer Questions:

1. What is meant by communication? Explain the electronic communication system with its block diagram.
2. What are the means or applications of electronic communication system? Write the expression of any five applications.

3. Explain an electromagnetic communication system with its spectrum diagram.
4. Explain the concept of noise and also explain its types.
5. Define AM. Obtain an expression for AM wave and draw the frequency spectrum for the same.
6. With neat block diagram explain the AM super heterodyne radio receiver.
7. Define FM. Obtain an expression of FM wave and draw the frequency spectrum for the same.
8. Define PM. Obtain an expression for PM wave and draw the frequency spectrum for the same.
9. With block diagram explain super heterodyne FM receiver.
10. With block diagram explain transponder.
11. With block diagram explain satellite earth station.

3. Write short answers of the following (any four)
[20]

Short Answer Questions

1. What is the basic idea of communication? Also explain the electronic communication system.
2. Write short notes on:
 - A) Analog or digital communication.
 - B) Base band signal communication.
3. Write a short note on one way and two-way communication system
4. Write applications of electronic communication system.
5. Write a short note on duplex communication system with its examples.
6. Write a short note on telecom regulatory authority of India [TRAI].
8. Explain the classification of noise as an external noise and internal noise.
9. Explain the working of AM diode detector.
10. Define modulation index and percentage modulation in AM.
11. With neat circuit diagram, explain AM modulation using transistor.
12. What is the need of modulation?
13. Explain with neat circuit diagram DSB generator using FET balanced modulator.
14. Define FM and explain modulation index of FM.
15. Define PM and explain modulation index of PM.
16. With block diagram explain working of FM generator using VCO.
17. With neat diagram explain slope detector for FM.
18. What is the need of satellite communication?
19. Explain geosynchronous satellite orbits.
20. What are the advantages of geostationary satellite?
21. Write note on transponder
22. Write note on satellite visibility
23. Write note on signal to noise ratio.

24. Explain linear diode detector.
25. Explain the satellite communication system

Question Bank

Paper- VI

DSC -C10: Introduction to Microprocessor 8085 and Microcontroller 8051

Question Bank

Q. Select most correct alternative:

- 1) Microcomputer system is built using-----
 - a) Microprocessor
 - b) Memory
 - c) Input-Output Devices
 - d) all of these
- 2)is/are the example/s of ROM.
 - a) EPROM
 - b) MASK
 - c) EEPROM
 - d) all of these
- 3) Memory IC 2764 is of -----Byte
 - a) 2K
 - b) 4K
 - c) 8 K
 - d) 16 K
- 4) To interface IC 2764 with 8085, it requires -----address lines.
 - a) 11
 - b) 12
 - c) 13
 - d) 14
- 5) Memory IC 27128 is of -----Byte
 - a) 2K
 - b) 4K
 - c) 8 K
 - d) 16 K
- 6) To interface IC 27128 with 8085, it requires -----address lines.
 - a) 11
 - b) 12
 - c) 13
 - d) 14
- 7) _____ memory is erased by ultraviolet light radiation.
 - i) PROM
 - ii) Flash EPROM
 - iii) EEPROM
 - iv) EPROM
- 8) Memory capacity of IC 2764 is of _____ byte
 - i) 2K
 - ii) 4K
 - iii) 8K
 - iv) 16K
- 9) One Time Programmable ROM is_____
 - i) Flash EPROM
 - ii) PROM
 - iii) EEPROM
 - iv) EPROM
- 10) _____ memory is the non-volatile memory.

- i) PROM ii) SRAM iii) DRAM iv) none of these
- 11) To interface memory IC 2764 to 8085, it requires _____ address lines.
i) 11 ii) 12 iii) 13 iv) 14
- 12) ----- register is used to indicate status of the result in 8085 microprocessor.
i) ACC ii) Flag iii) PC iv) SP
- 13) To de-multiplex the bus AD₀-AD₇ in 8085 _____ signal is used.
i) RESET IN ii) S0 iii) ALE iv) HOLD 14)
- 8085 can access maximum _____ bytes of memory.
i) 32 K ii) 64K iii) 8K iv) 4K
- 15) The size of data bus in 8085 is _____ bit.
i) 4 ii) 8 iii) 12 iv) 16
- 16) _____ is 16 bit register.
i) ACC ii) B iii) PC iv) H
- 17) _____ is a memory pointer register.
i) ACC ii) B iii) Flag iv) PC
- 18) 8085 μ p is ----- bit microprocessor.
a) 4 b) 8 c) 16 d) 32
- 19) Operating frequency of 8085 μ p is -----MHz
a) 1 b) 2 c) 3 d) 4
- 20) ----- technology is used to fabricate 8085 μ p.
a) NMOS b) CMOS c) HMOS d) TTL
- 21) ----- register is used to indicate status of the result.
a) ACC b) Flag c) PC d) SP
- 22) ----- is a 16 bit register.
a) ACC b) Flag c) PC d) B
- 23) ----- is a memory pointer register.
a) ACC b) Flag c) PC d) B
- 24) ----- signal is used to Demultiplexing AD₀-AD₇.
a) RESET IN b) ALE c) S0, S1 d) IO/M
- 25) 8085 microprocessor can access ----- bytes of memory.
a) 8 K b) 16K c) 32K d) 64K
- 26) 8085 microprocessor has ----- bit data bus.
a) 4 b) 8 c) 16 d) 32

- 27) To communicate with slower memories ----- signal is used.
 a) RESET IN b) ALE c) READY d) HOLD
- 28) Stack memory is initialized using ----- instruction.
 a) LXI H, xxxxH b) LXI SP, xxxxH c) PUSH B d) POP B
- 29) -----are 16-bit registers.
 a) PC and ACC b) SP and ACC c) PC and SP d) ACC and B
- 30) -----is not be an Interrupt signal.
 a) INTR b) RST 7.5 c) RST 5.5 d) HOLD
- 31) Principal register in 8085 microprocessor is-----
 a) ACC b) Flag c) PC d) SP
- 32) -----registers can be acts as inputs for ALU.
 a) ACC and B b) B and C c) PC and SP d) ACC and Temp Register
- 33) -----registers are not user accessible.
 a) ACC and B b) B and C c) PC and SP d) W and Z
- 34) 8085 microprocessor has -----number of General purpose registers.
 a) 4 b) 6 c) 8 d) 10
- 35) To clear the contents of accumulator, the instruction used is/are _____
 i) SUB A ii) XRA A iii) MVI A, 00H iv) All of these
- 36) When subroutine is called the address of instruction following the CALL instruction is stored in the _____
 i) Stack Pointer ii) Instruction Register iii) Program counter iv) Stack memory
- 37) The addressing mode of instruction MVI A, 05H is _____
 i) Direct addressing ii) Immediate addressing iii) Register indirect addressing iv) Implicit
- 38) _____instruction is used to store the contents of registers on Stack.
 i) JMP ii) MOV iii) PUSH iv) POP
- 39) LXI H, 5555H is a _____ byte instruction.
 i) one ii) two iii) three iv) four
- 40) The addressing mode of RLC instruction is _____

- i) register ii) register indirect iii) direct iv) implicit

41) If register A = 58H, after execution of instruction ANI, 0FH the content of accumulator will be _____

- i) 05H ii) 0FH iii) 5FH iv) 08H

42) LDA, 5020H is _____ byte instruction.

- i) four ii) three iii) two iv) one

43) To call a subroutine unconditionally _____ instruction is used.

- i) JMP ii) JNZ iii) CALL iv) CZ

44) Maskable interrupts can be disabled using _____ instruction.

- i) ORI ii) RIM iii) EI iv) DI 45) MVI B, 50H is

_____ byte instruction.

- i) four ii) three iii) two iv) one 46)

MOV A, B is a/an _____ byte instruction.

- i) one ii) two iii) three iv) four

47) The addressing mode of MOV A, M instruction is _____

- i) register ii) register indirect iii) direct iv) implicit

48) If register A = 98H, after execution of instruction ANI, F0H the content of accumulator will be _____

- i) 09H ii) 98H iii) 08H iv) 90H

49) If register A = 28H, after execution of instruction ANI, 0FH the content of accumulator will be _____

- a) 20H b) 0FH c) 2FH d) 08H

50) To clear the contents of accumulator, the instruction used is/are _____

- i) SUB A ii) XRA A iii) MVI A, 00H iv) all of these 51)

To call a subroutine unconditionally _____ instruction is used.

- i) JNZ ii) JMP iii) CZ iv) CALL

52) _____ instruction is used to store the contents of registers on Stack.

- i) JMP ii) MOV iii) PUSH iv) POP

53) To call a subroutine conditionally -----instruction is used.

- a) JMP b) CZ c) CALL D) RET

- 54) The addressing mode of instruction JMP, 2005H is _____
- i) Direct addressing ii) Immediate addressing
 iii) Register indirect addressing iv) Implicit
- 55) 8051 has -----number of 8-bit I/O ports
- i) 4 ii) 8 iii) 16 iv) 32
- 56) 8051 has ----- number of 16 bit timers.
- i) 4 ii) 8 iii) 16 iv) 2
- 57) The 8051 has _____ I/O port pins.
- i) 4 ii) 8 iii) 16 iv) 32
- 58) _____ register in 8051 has no address.
- i) ACC ii) B iii) DPTR iv) PC
- 59) The 8052 has _____ bytes of on-chip ROM.
- i) 0 K ii) 4 K iii) 8K iv) 256 K
- 60) 8051 has _____ numbers of Register Banks.
- i) 2 ii) 4 iii) 8 iv) 32
- 61) 8051 microcontroller has -----pins
- a) 20 b) 40 c) 80 d) 16
- 62) DPTR is a ----- bit register
- a) 8 b) 16 c) 64K d) 2K
- 63) 8051 has -----Bytes of internal memory space
- a) 128 b) 16 c) 64K d) 2K
- 64) 8051 is a -----bit microcontroller
- a) 8 b) 16 c) 64 d) 2
- 65) To access the external memory -----pin s used
- a) EA/Vpp b) PSEN c) ALE/PROG d) Vcc
- 66) 8051 has -----number of I/O 8 bit ports
- a) 8 b) 32 c) 4 d) 1
- 67) 8051 has ----- number of 16 bit timers.
- a) 8 b) 32 c) 2 d) 1
- 68) 8051 has ----- number of register banks .
- a) 8 b) 4 c) 2 d) 1

69) 8051 has built internal -----of ROM.

- a) 8KB b) 4KB c) 2KB d) 1KB

70) 8051 has built internal -----of RAM.

- a) 0 bytes b) 256 bytes c) 128 bytes d) 4 KB

Short answer questions (5 marks)

1. Write a note on EPROM and EEPROM.
2. Mention various types of semiconductor memories. Explain any one of these.
3. Mention various types of semiconductor memories. Explain RAMs.
4. Explain in brief Evolution of the Microprocessors.
5. Draw a block diagram of Microcomputer system.
6. Draw and explain interfacing diagram of EPROM 2764 to 8085 microprocessor and find its memory map.
7. Explain various types of ROMs used in microcomputer system.
8. Give any four features of 8085 Microprocessor.
9. Explain Flag register of 8085 Microprocessor.
10. Explain ALU and ACC of 8085 Microprocessor.
11. Explain Stack and Stack pointer register.
12. Explain 8085 programmable registers.
13. Explain various buses of 8085 Microprocessor.
14. Give in tabular form the basic machine cycles of 8085 Microprocessor.
15. Give a brief account of 8085 Microprocessor interrupts.
16. Explain RD, WR, ALE and IO/M signals.
17. Explain any four Data transfer instructions.
18. Explain any four Logical instructions.
19. What is the difference between JMP and CALL instruction?
20. Explain the CMP and CPI instruction with the flag status.
21. Explain the following instructions ANA B and ANI B.
22. Write an ALP (Assembly Language Program) to add two 8 bit numbers. The numbers are stored 6000 and 6001H memory location. Store the result at 6002H memory location after addition.
23. Write an ALP (Assembly Language Program) to subtract two 8 bit numbers. The numbers are stored 6000 and 6001H memory location. Store the result at 6002H memory location after subtraction.
24. Explain CALL and RET instructions.
25. Explain how the CALL and RET instructions are used in calling a subroutine.

26. Differentiate between JMP and CALL instructions.
27. Explain the difference between microprocessor and microcontroller.
28. Give any four features of 8051 microcontroller.
29. Mention any eight applications of 8051 microcontroller.
30. Give overview of 8051 family.
31. Explain the PSW register of 8051 microcontroller.
32. Explain any four SFRs of 8051 microcontroller.
33. Write a short note on stack and stack pointer.

Long answer questions (10 Marks)

1. Draw a block diagram of Microcomputer system and explain its various parts.
2. What are semiconductor memories? Explain them.
3. Draw the neat schematic showing the interface between 8085 microprocessor and 2764 EPROM. Also explain memory map indicating the address and range.
4. Draw the neat schematic showing the interface between 8085 microprocessor and 27128 EPROM. Also explain memory map indicating the address and range.
5. Interface 27128 EPROM chip to 8085 microprocessor and explain its memory map.
6. How 2764 EPROM chip is interfaced to 8085 microprocessor? Find its memory map.
7. Draw an internal architecture of 8085 Microprocessor and explain its various blocks.
8. Draw the functional block diagram of 8085 microprocessor and describe its various blocks.
9. Draw an internal architecture of 8085 Microprocessor and explain its programmable registers.
10. Draw an internal architecture of 8085 Microprocessor and explain its Status and Control signals.
11. Draw an internal architecture of 8085 Microprocessor and explain its Status and Control signals.
12. Draw the signal diagram of 8085 Microprocessor and explain various signals.
13. Draw the pin diagram of 8085 Microprocessor and explain various signals. 14. Explain ADD, ADC B, DAD B, ADD M instruction with proper example.
15. Explain the different addressing modes with examples.
16. Discuss different types of addressing modes used in 8085 microprocessor with two examples of each.
17. Classify the instructions set of 8085 microprocessor according to its various operations and explain them with two suitable examples of each.

18. Classify the instruction set according to byte size/word size and explain them with three suitable examples of each.
19. Explain the one, two and three byte instructions with proper two examples of each.
20. Explain ADD, ADC B, DAD B, ADD M instruction with proper examples.
21. Explain eight logical instructions of 8085.
22. Explain the conditional CALL instructions with proper instructions.
Write an ALP(Assembly Language Program) to divide two 8-bit numbers. The numbers are stored 6000 and 6001H memory location. Store the result at 6002H memory location after division.
23. Write an ALP(Assembly Language Program) to multiply two 8-bit numbers. The numbers are stored 6000 and 6001H memory location. Store the result at 6002H memory location after multiplication.
24. Write an ALP(Assembly Language Program) to transfer a block of data from 6000H and store it at 8000H. copy 10 number of bytes in sequential manner.
25. Draw the pin diagram of 8051 microcontroller and explain its various pins.
26. Draw and explain block diagram / architecture of 8051.
27. Draw and explain the RAM and ROM structure/organization of 8051.
28. Draw the block diagram / architecture of 8051 and explain the RAM structure/organization.
29. Differentiate microprocessor and microcontroller. Explain in detail the internal memory organization of 8051 Microcontroller.

