

Roll No. ....

Question Booklet Number

O. M. R. Serial No.

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Question Booklet Number
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## M. Sc. (Electronics) (Fourth Semester)

### EXAMINATION, 2022-23

#### MICROPROCESSOR AND MICROCONTROLLER

Paper Code						
E	L	C	4	0	2	N

Questions Booklet Series
<b>A</b>

Time : 1:30 Hours ]

[ Maximum Marks : 75

#### Instructions to the Examinee :

परीक्षार्थियों के लिए निर्देश :

1. Do not open the booklet unless you are asked to do so.
  2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.
  3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.
1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
  2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
  3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page)

(शेष निर्देश अन्तिम पृष्ठ पर)

***(Only for Rough Work)***

1. Suppose registers 'A' and 'B' contain ABH and CDH respectively. After instruction MOV A, B what will be the contents of registers A and B ?
  - (A) ABH, ABH
  - (B) ABH, CDH
  - (C) CDH, ABH
  - (D) CDH, CDH
  
2. Which of the following is a direct addressing mode instruction set ?
  - (A) STA 2700H
  - (B) ACI 36H
  - (C) DAA
  - (D) LDAX B
  
3. Which of the following is not a data copy/transfer instruction ?
  - (A) POP
  - (B) DAS
  - (C) MOV
  - (D) PUSH
  
4. Interrupt RST5.5 is ..... triggered.
  - (A) Level
  - (B) Edge
  - (C) Edge and Level
  - (D) None of the above
  
5. 'RD' and 'WR' are the ..... signals of 8085.
  - (A) Control
  - (B) Status
  - (C) Clock
  - (D) All of the above
  
6. If 'n' denotes the number of clock cycles and 'T' denotes period of the clock at which the microprocessor is running, then the duration of execution of loop once can be denoted by ..... ?
  - (A)  $n + T$
  - (B)  $n - T$
  - (C)  $n * T$
  - (D)  $n/T$
  
7. The number of Hardware Interrupt pins in 8085 is ..... .
  - (A) 5
  - (B) 4
  - (C) 3
  - (D) 2
  
8. In general, the source operand of an instruction can be ..... .
  - (A) memory location
  - (B) register
  - (C) immediate data
  - (D) All of the mentioned

9. The instruction MOV CL, [BX] is an example of .....
- (A) Immediate addressing mode
  - (B) Direct addressing mode
  - (C) Register indirect addressing mode
  - (D) Register addressing mode
10. One T-state is 0.2 microsecond, then the processor operates at .....
- (A) 5 MHZ frequency
  - (B) 10 MHZ frequency
  - (C) 20 MHZ frequency
  - (D) 25 MHZ frequency
11. If more than one interrupt occurs at same time, on what basis interrupts assign to the processor .....
- (A) random basis
  - (B) delay basis
  - (C) Priority basis
  - (D) processors stops to accept interrupt
12. The Stack follows the sequence .....
- (A) FIFO
  - (B) FILO
  - (C) LIFO
  - (D) LILO
13. L = 45H, A = 00H. After the execution of XRA L .....
- (A) Data in A = 00H
  - (B) Data in A = 45H
  - (C) Data in A = AAH
  - (D) Data in A = 56H
14. Subprogram is always terminated by ..... instructions.
- (A) RST
  - (B) PUSH
  - (C) Halt
  - (D) RET
15. After every response to the single step interrupt the flag that is cleared .....
- (A) TF (Trap Flag)
  - (B) IF (Interrupt Flag)
  - (C) OF (Overflow Flag)
  - (D) None of the mentioned
16. After the execution of XRA A, the value of flags are .....
- (A) Z = 0, P = 0
  - (B) Z = 0, P = 1
  - (C) Z = 1, P = 0
  - (D) Z = 1, P = 1

17. The number of pins in 8051 microcontroller IC is .....
- (A) 20
  - (B) 30
  - (C) 40
  - (D) 60
18. The instruction, RAL performs .....
- (A) rotation of accumulator to left with Carry
  - (B) rotation of accumulator to left without Carry
  - (C) rotation of accumulator to right with Carry
  - (D) rotation of accumulator to right without Carry
19. In OUT 05H, .....
- (A) 05H is the address of the input port
  - (B) 05H is the address of the output port
  - (C) 05H is the data to the input port
  - (D) 05H is the data from the output port
20. Which flag is reset, when most significant bit is 0 after an operation ?
- (A) Carry flag
  - (B) Parity flag
  - (C) Sign flag
  - (D) Zero flag
21. Which of the following are the components of a microprocessor ?
- (A) ALU
  - (B) Register array
  - (C) Control unit
  - (D) All the above
22. Which of the following statements is related to the register array ?
- (A) It consists of registers like B, C, D, E, H, L
  - (B) It consists of an accumulator
  - (C) Both (A) and (B)
  - (D) None of the above

23. Which of the following sequence a microprocessor follows ?
- (A) Fetch, decode, execute
  - (B) Fetch, execute, decode
  - (C) Decode, fetch, execute
  - (D) Execute, decode, fetch
24. ALU stands for .....
- (A) Arithmetic logical unit
  - (B) Address logic unit
  - (C) Addition logic unit
  - (D) None of the above
25. Pin  $X_1$  and  $X_2$  are used for connecting ..... in 8085.
- (A) Amplifier
  - (B) Rectifier
  - (C) Oscillator
  - (D) None of the above
26. Instructions in a microprocessor, are fetched from .....
- (A) ALU
  - (B) Memory
  - (C) CPU
  - (D) All the above
27. Word length depends on .....
- (A) Internal bus width
  - (B) Registers
  - (C) ALU
  - (D) All the above
28. A microprocessor with 8-bit can process ..... bits of data at a time.
- (A) 4
  - (B) 8
  - (C) 12
  - (D) 16
29. RISC type processor stands for .....
- (A) Reduced instruction set computer processor
  - (B) React instruction set computer processor
  - (C) Reduced information set computer processor
  - (D) None of the above
30. DMA stands for .....
- (A) Direction memory access
  - (B) Dictate memory accumulator
  - (C) Direct memory access
  - (D) None of the above

31. DSP in DSP processor stands for .....
- (A) Digital signal processor
  - (B) Digital sign processor
  - (C) Digital signal pin
  - (D) None of the above
32. 8086 is a ..... bit microprocessor.
- (A) 8 bit
  - (B) 16 bit
  - (C) 32 bit
  - (D) All the above
33. 8085 is designed by .....
- (A) Intel
  - (B) ADM
  - (C) Microsoft
  - (D) None of the above
34. 8085 microprocessor has ..... bits of stack pointer.
- (A) 8
  - (B) 16
  - (C) 32
  - (D) 48
35. How many flip flops are there in a flag register of 8085 ?
- (A) 4
  - (B) 5
  - (C) 6
  - (D) 7
36. Which of the following are status signals of the 8085 processor ?
- (A) READY, RD, WR, ALE
  - (B) S0, S1, IO/M
  - (C) HOLD, HLDA
  - (D) RESET
37. Which of the following are interrupt signals in the 8085 processor ?
- (A) Trap
  - (B) RST 7.5
  - (C) RST 6.5
  - (D) All the above
38. Data bus in 8085 is ..... directional.
- (A) Unidirectional
  - (B) Bi-directional
  - (C) Tri-directional
  - (D) Multi-directional

39. Which of the following are the types of registers in the 8086 microprocessor ?
- (A) General-purpose registers
  - (B) Segment registers
  - (C) Special-purpose registers
  - (D) All of the above
40. 8086 can operate in ..... modes.
- (A) 1
  - (B) 2
  - (C) 3
  - (D) 4
41. Does the 8086 processor have multiplication and division instructions ?
- (A) No
  - (B) Only multiplication
  - (C) Both multiplication and division instructions
  - (D) Only Division
42. What are the operating frequencies of the 8086 microprocessor ?
- (A) 5 MHz
  - (B) 8 MHz
  - (C) 10 MHz
  - (D) All of the above
43. 8051 is a .....
- (A) Microprocessor
  - (B) Microcontroller
  - (C) Both (A) and (B)
  - (D) None of the above
44. The 8085 microprocessor program counter or PC is a 16-bit register, for the reason that .....
- (A) At a time it calculates 16-bits
  - (B) Address lines are 16
  - (C) It helps the user in storing 16-bit data for the time being
  - (D) At a time it has to obtain two 8-bit data
45. Which of the following 16-bit register is for 8085 ?
- (A) Accumulator
  - (B) Register C
  - (C) Stack pointer
  - (D) Register H



46. What kind of interrupts are RST0 to RST7 in the 8085 microprocessor ?
- (A) Logical interrupts
  - (B) Hardware interrupts
  - (C) Conditional interrupts
  - (D) Software interrupts
47. In 8085 microprocessor, the address bus with 16-bit can address up to .....
- (A) 8 KB
  - (B) 64 KB
  - (C) 32 KB
  - (D) 16 KB
48. The term 'EA' in the microprocessor stands for .....
- (A) Enable address
  - (B) Efficient address
  - (C) Exclusive address
  - (D) Effective address
49. INTR stands for .....
- (A) Interrupt reset
  - (B) Interrupt response
  - (C) Interrupt request
  - (D) Interrupt ronaugh
50. Which of the following are the register pair in the 8085 microprocessor ?
- (A) BC
  - (B) DE
  - (C) HL
  - (D) All the above
51. BCD addition in 8085 can be performed by instruction .....
- (A) DAA
  - (B) LXI
  - (C) LDA
  - (D) LHLD
52. BIU stands for .....
- (A) Bus interrupt unit
  - (B) Bus instruction unit
  - (C) Bus interface unit
  - (D) None of the above
53. What is DS in a microprocessor ?
- (A) Declare Segment
  - (B) Data Segment
  - (C) Direct Segment
  - (D) Double Segment

54. A 8086 has ..... byte queue of pipelining ?
- (A) 6  
(B) 5  
(C) 7  
(D) 8
55. A BIU comprises of ..... number of segmented register.
- (A) 1  
(B) 2  
(C) 3  
(D) 4
56. .... segment in 8086 provides starting address of a stack.
- (A) Code  
(B) Stack  
(C) Data  
(D) All the above
57. 8086 can access up to ..... .
- (A) 512 KB  
(B) 1 Mb  
(C) 2 Mb  
(D) 256 KB
58. Which instruction is Used to load the address of operand into the provided register ?
- (A) LEA  
(B) LDS  
(C) LES  
(D) LAHF
59. How many ports does 8255A have ?
- (A) 2  
(B) 3  
(C) 4  
(D) 5
60. Which port of 8255 can be split into two parts ?
- (A) PORT A  
(B) PORT B  
(C) PORT C  
(D) PORT D
61. 8253 can be operated in ..... Modes.
- (A) 3  
(B) 4  
(C) 5  
(D) 6

62. Which mode can be used as a mono stable multi-vibrator ?
- (A) Mode 0
  - (B) Mode 1
  - (C) Mode 2
  - (D) Mode 3
63. The IF is called as .....
- (A) initial flag
  - (B) indicate flag
  - (C) interrupt flag
  - (D) inter flag
64. The BP is indicated by .....
- (A) base pointer
  - (B) binary pointer
  - (C) bit pointer
  - (D) digital pointer
65. IMUL source is a signed .....
- (A) multiplication
  - (B) addition
  - (C) subtraction
  - (D) division
66. The ..... contains an offset instead of actual address.
- (A) SP
  - (B) IP
  - (C) ES
  - (D) SS
67. If MN/MX is low the 8086 operates in ..... mode.
- (A) Minimum
  - (B) Maximum
  - (C) Both (A) and (B)
  - (D) Medium
68. ALE stands for .....
- (A) Address Latch Enable
  - (B) Address Level Enable
  - (C) Address Leak Enable
  - (D) Address Leak Extension
69. Which method bypasses the CPU for certain types of data transfer ?
- (A) Software interrupts
  - (B) Interrupt-driven I/O
  - (C) Polled I/O
  - (D) Direct memory access (DMA)
70. Which group of instructions do not affect the flags ?
- (A) Arithmetic operations
  - (B) Logic operations
  - (C) Data transfer operations
  - (D) Branch operations

71. How many pins does the 8255 PPI IC contain ?
- (A) 24  
(B) 20  
(C) 32  
(D) 40
72. In which mode do all the Ports of the 8255 PPI work as Input-Output units for data transfer ?
- (A) BSR mode  
(B) Mode 0 of I/O mode  
(C) Mode 1 of I/O mode  
(D) Mode 2 of I/O mode
73. .... register must be initialized before any use of 8251.
- (A) Command word  
(B) Control word  
(C) Mode word  
(D) Both (A) and (C)
74. Which is not an operand ?
- (A) Variable  
(B) Register  
(C) Memory location  
(D) Assembler
75. Which of the following instructions is not valid ?
- (A) MOV CX, AX  
(B) MOV CS, 2500H  
(C) MOV DX, 7500H  
(D) PUSH AX
76. In 8086 microprocessor, the data segment may have a memory block of a maximum of .....
- (A) 32 K bytes  
(B) 64 K bytes  
(C) 16 K bytes  
(D) None of the above
77. Which of the following is false about STA instruction ?
- (A) It is a 3-byte instruction  
(B) It uses indirect addressing mode  
(C) It has 13 T-states  
(D) It doesn't affect any flags

78. In BSR mode, only port C can be used to :
- (A) set individual port
  - (B) reset individual port
  - (C) set and reset individual port
  - (D) programmable I/O port
79. If BCD = 0, then the operation is :
- (A) decimal count
  - (B) hexadecimal count
  - (C) binary count
  - (D) octal count
80. In PUSH instruction, after each execution of the instruction, the stack pointer is :
- (A) incremented by 1
  - (B) decremented by 1
  - (C) incremented by 2
  - (D) decremented by 2
81. 8085 microprocessor has ..... bits of data bus.
- (A) 8
  - (B) 16
  - (C) 32
  - (D) 48
82. 8085 microprocessor has ..... bits of program counter.
- (A) 8
  - (B) 16
  - (C) 32
  - (D) 48
83. The BIU prefetches the instruction from memory and store them in .....
- (A) queue
  - (B) register
  - (C) memory
  - (D) stack
84. 8251 contains ..... data buffer registers.
- (A) 2
  - (B) 4
  - (C) 1
  - (D) None of the above
85. 8251 converts ..... data for transmission to communicate with microprocessor.
- (A) Parallel to serial
  - (B) Serial to parallel
  - (C) Both (A) and (B)
  - (D) None of the above

86. In cascaded mode, the number of vectored interrupts provided by 8259A is .....
- (A) 4
  - (B) 8
  - (C) 16
  - (D) 64
87. Which is of the following is true about PCHL instruction ?
- (A) It uses indexed addressing mode
  - (B) It is a 3-byte instruction
  - (C) It requires three T-states
  - (D) Contents of HL pair is moved to PC
88. The instruction, MOV CH, 45H is an example of .....
- (A) register addressing mode
  - (B) direct addressing mode
  - (C) immediate addressing mode
  - (D) based indexed addressing mode
89. The extension that is essential for every assembly level program is .....
- (A) .ASP
  - (B) .ALP
  - (C) .PGM
  - (D) .ASM
90. During comparison operation, the result of comparing or subtraction is stored in .....
- (A) memory
  - (B) registers
  - (C) stack
  - (D) nowhere
91. C = 25H, A = 00h. After the execution of CMP C .....
- (A) carry flag = 1, zero flag = 1
  - (B) carry flag = 0, zero flag = 1
  - (C) carry flag = 1, zero flag = 0
  - (D) carry flag = 0, zero flag = 0
92. RIM instructions used to perform ..... communication.
- (A) Serial
  - (B) Parallel
  - (C) Both serial and parallel
  - (D) Not used for communication purpose

93. If a 32 MB memory has to be connected to a microprocessor, minimum how many address lines are required ?
- (A) 26  
(B) 25  
(C) 24  
(D) 27
94. Which is not the control bus signal ?
- (A) READ  
(B) WRITE  
(C) RESET  
(D) None of the above
95. EPROM stands for .....
- (A) Erasable programmable read only memory  
(B) Electrically programmable read only memory  
(C) Electrically programmable read write memory  
(D) None of the above
96. When non-specific EOI command is issued to 8259A it will automatically :
- (A) set the ISR  
(B) reset the ISR  
(C) set the INTR  
(D) reset the INTR
97. In the application where all the interrupting devices are of equal priority, the mode used is .....
- (A) automatic rotation  
(B) automatic EOI mode  
(C) specific rotation  
(D) EOI
98. The instruction that compliment the accumulator is .....
- (A) CMC  
(B) CMA  
(C) STC  
(D) RRC
99. Conditional instructions are independent of which of the following flags ?
- (A) Z  
(B) CY  
(C) AC  
(D) P
100. The generation of a square wave is possible in the .....
- (A) mode 4  
(B) mode 3  
(C) mode 2  
(D) mode 1

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

**Example :**

**Question :**

Q. 1 (A) ● (C) (D)

Q. 2 (A) (B) ● (D)

Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

**Impt. :** On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर—A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)

प्रश्न 2 (A) (B) ● (D)

प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

**महत्वपूर्ण :** प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।