

Seat No. : _____

DB-101

December-2021

BCA, Sem.-III

CC-201 : Computer Organization (New)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) All Questions in Section – I carry equal marks.
 - (2) Attempt any **Two** questions in Section – I.
 - (3) Question – **5** in Section – II is Compulsory.

Section – I

1. (A) (i) Draw logical diagram and truth table for half adder and JK flip flop. **5**
(ii) Explain 4-bit synchronous binary counter. **5**
(B) (i) Define decoder and explain 3-to-8 line decoder. **5**
(ii) Draw logical diagram/graphical symbol and truth table for 4-1 line multiplexer, AND gate & NOT gate. **5**
2. (A) Explain 4-bit binary adder circuit and error detection code. **10**
(B) Perform (i) Add +13 & -6 (ii) subtract +4 from +7 using 2's complement representation in 8 bit register. Also explain shift micro operation in brief. **10**
3. (A) Explain Instruction cycle with flowchart. Also explain direct and indirect addressing modes in brief. **10**
(B) Explain 16-bit common bus system. **10**
4. (A) Explain handshaking method and programmed I/O mode of transfer. **10**
(B) Explain DMA with block diagram of DMA controller. **10**

Section – II

5. Select the correct option : **10**
(1) A circuit that performs the arithmetic addition of three input bits is called _____ adder.
(a) Half Adder (b) Full Adder
(c) Multiplexer (d) Binary Adder

- (2) _____ flip flop acts as a toggle switch.
- (a) D (b) T
(c) SR (d) JK
- (3) The 9's complement of a decimal number 718 is _____.
- (a) 281 (b) 282
(c) 283 (d) 284
- (4) RTL stands for _____.
- (a) Register Transfer Language
(b) Register Transport Language
(c) Register Translate Language
(d) Register Transform Language
- (5) The memory read operation can be stated symbolically as _____.
- (a) $DR \leftarrow MR[AR]$ (b) $MR[AR] \leftarrow DR$
(c) $AR \leftarrow MR[DR]$ (d) None of the above
- (6) The operation code of an instruction specifies _____.
- (a) Type of operation to be performed
(b) Memory address of operand
(c) Register address of operand
(d) None of the above
- (7) _____ is not an instruction code format.
- (a) Memory-reference (b) Register-reference
(c) IO-Reference (d) None of these
- (8) A computer goes to an interrupt cycle, when an interrupt flip-flop R is equal to _____.
- (a) 1 (b) 0
(c) -1 (d) None of the above
- (9) _____ determines which interrupt is to be served first when two or more requests are made simultaneously.
- (a) Interrupt priority (b) Interrupt occurrences order
(c) Interrupt type (d) None of the above
- (10) In I/O Bus and Interface Modules, interface may receive _____.
- (a) Control command (b) Status command
(c) IO command (d) All of the above