

Total No. of Questions : 5]

SEAT No. :

P5134

[5823] - 206

[Total No. of Pages : 2

F.Y.B.Sc. (Computer Science)

ELECTRONIC SCIENCE

ELC-122 : Basics of Computer Organization

(New 2019 Pattern) (CBCS) (Semester -II) (Paper-II)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Question 1 is compulsory.*
- 2) *Solve any three questions from Q2 to Q5.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw neat diagrams wherever necessary.*
- 5) *Questions 2 to 5 carry equal marks.*

Q1) Solve any five of following.

[5×1=5]

- a) _____ number of address lines are required for the memory of 2 MB capacity.
- b) Write the full forms with respect to Computer Organization.
CPU - _____
PC- _____
- c) What is the role of stack pointer in Computer Organization?
- d) Write any two applications of counter.
- e) Draw the logic symbol of J-K flip-flop
- f) What is significance of data bus in Computer Organization?

Q2) a) Answer any two of the following.

[2×3=6]

- i) Draw the neat logic diagram of R-S flip flop using NAND gates. Also write down its truth table.
- ii) Explain the need of Input output interface in Computer Organization.
- iii) Write three point difference between Synchronous Counter and Asynchronous counter.

b) With neat block diagram explain four level memory hierarchy.

[4]

P.T.O.

Q3) a) Answer any two of the following ; **[2×3=6]**

- i) Design a memory of (1K×16) using available memory chip of size (1K×4). The memory is of RAM type.
 - ii) Explain T Flip-Flop using J-K Flip-Flop with neat logic diagram. Draw the wave forms of clock and output.
 - iii) Draw logic diagram of 3 bit SISO shift register in right shift mode and explain its working.
- b) Draw neat block diagram of CPU and Explain working of each block. **[4]**

Q4) a) Answer any Two of the following. **[2×3=6]**

- i) Explain the operation of ring counter with neat logic diagram.
 - ii) Explain the concept of memory stack organization with diagram.
 - iii) Discuss various types of memories used in computer system in short.
- b) Explain working of 3-bit Asynchronous up counter with logic diagram, Truth table and timing diagram. **[4]**

Q5) Answer any four of the following. **[10]**

- a) Explain in short Race around condition in J-K Flip Flop
- b) Draw logic diagram of PISO shift register.
- c) What is role of Cache memory in computer organization.
- d) Write a short note on Virtual memory.
- e) Explain basic Computer Organization with block diagram.
- f) Calculate average Access time of memory if hit ratio is 95%, Cache memory access time is 400 nsec and main memory access time is 900 nsec.

