B.Tech. – VIEP – COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

Term-End Examination

00519

December, 2017

BICS-013 : COMPUTER ORGANISATION

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks.*

1. (a) Represent the following decimal numbers using fixed point or floating point number representation, whichever being applicable. *1+1+1+2=5*

(i) 27

(ii) 128

(iii) – 29

(iv) 22·5

(b) Define the term Bus in the context of computer organisation. What is the meaning of bus arbitration ? Explain any one bus arbitration scheme. *1+1+3=5*

2. (a) What are the different functional units of a computer ? Explain with the help of a diagram. 5

(b) Explain the process of transfer of data between a memory location/locations and memory. 5

3. (a) Explain in the context of computer organisation, how ROM is different in construction than RAM. 5

(b) Write the steps that will be required to add two floating point numbers with the help an example. 5

4. (a) What is an Adder ? Explain the functioning of a carry-lookahead adder. 5

(b) Explain the following addressing modes with the help of an example each : *1+2+2=5*

(i) Direct Addressing

(ii) Register Indirect

(iii) Stack Addressing

5. (a) Show the process of subroutine call instruction with the help of an example. 5

(b) Explain the steps of fetch cycle using micro-operations. 5

6. (a) Differentiate between Horizontal and Vertical microinstructions. 5

(b) Why is pre-fetch of microinstructions performed ? Explain with the help of an example. 5

7. (a) Differentiate between 2D and $2\frac{1}{2}$ D memory organisation. 5

(b) Explain the concept of virtual memory with the help of an example or a diagram. 5

8. (a) What is Access time of a disk ? How is it calculated ? Explain with the help of an example. 5

(b) Explain how the main memory address will be mapped to cache address if direct cache mapping scheme is used. 5

9. (a) What are the advantages of DMA over programmed Input/Output ? 5

(b) What are Logic Operations in the context of a CPU ? Give at least two examples of logic operations ? 5

10. Explain the following terms : 10

(a) Input/Output Port

(b) Interrupt

(c) Stack

(d) Serial Communication
