(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 9 2 0

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Bachelor of Computer Applications 2nd Semester

(2054)

COMPUTER ORGANIZATION

Paper : BCA—16-202

Time Allowed : Three Hours] **[Maximum Marks : 65**

Note :— Attempt *five* questions in all, including Q. 9 in Section-E, which is compulsory, and taking *one* each from Section-A to Section-D.

SECTION—A

1. (a) Von Neumann architecture is based on the stored-program computer concept. What is the stored program concept ? Why is this important ? In a computer designed with the stored-program concept, which special-purpose register is used to distinguish programs from data ? How ?

   (b) Describe three standard methods for representing characters in modern computers. 6,7

2. (a) Why a multiplexer is required ? How is it different from a decoder ? Construct a 16-to-1-line multiplexer with two 8-to-1-line multiplexers and one 2-to1-line multiplexer. Use block diagrams for the three multiplexers.

(b) What is the need of master-slave flip flop ? With the help of a logic diagram, explain the working of the master-slave flip-flop. 6,7

SECTION—B

3. (a) Describe the architecture of 8086/8088 microprocessor.

(b) What is register transfer language ? Give examples. How is information transfer achieved between different registers and memory units in the digital computer ? Explain. 6,7

4. (a) What is logical shift operation ? Explain difference between logical shift and arithmetic shift with the help of an example of each.

(b) What is DMA ? Explain its working, the possible data transfer modes and configurations of a DMA. 6,7

SECTION—C

5. What is virtual memory and why is it used ? Explain its organization. Give reasons why the page size in a virtual memory system should be neither very small nor very large. Give examples. 13

6. (a) What are four types of segments in 8086 assembly programming ? Explain the use of ASSUME directive with an example.

(b) Write an 8086 assembly language program to count the number of characters in a string stored in the Data Segment. 6,7

SECTION—D

7. (a) List and explain different types of displays used in modern computers with examples. Also mention their merits and demerits.

   (b) What is a VIRUS ? How do you detect, protect and cure your PC from viruses ? 6,7

8. Write short notes on :

   (a) PC Hardware Diagnostics Tools.

   (b) Working of a laser printer. 6,7

SECTION—E

(Compulsory Question)

9. (a) What are the stages of the evolution of the computer ? Explain with examples.

   (b) List five addressing modes used in an 8086 microprocessor. Explain each with the help of an example.

   (c) Explain the set associative mapping scheme of cache with the help of a suitable diagram.

   (d) What is anti-virus software ? Name three anti-virus softwares. 4,3,3,3