

**B. ENGG. (ELEC. ENGG.), 1<sup>ST</sup> YR, 1<sup>ST</sup> SEM. EXAMINATION, 2019 (OLD)**

**SUBJECT: - INTRODUCTION TO COMPUTING**

Time: Three hours

Full Marks 100

- Answer **any five** questions 20 × 5
1. a) Convert the following 10
    - i.  $(234.A6)_{16}$  to binary;
    - ii.  $(1100010.01110)_2$  to octal;
    - iii.  $(1BC)_{16}$  to octal;
    - iv.  $(103.45)_{10}$  to hexadecimal.
  - b) Using 1's and 2's complement method, subtract  $(0101.1)_2$  from  $(1001.11)_2$ . 6
  - c) Convert  $(01101.001)_2$  into decimal number using Double-Dabble method. 4
  2. a) Explain the function of each of the following instructions with examples: LDA 2050H; SUB B; XRA A; INX H; CMP B. 10
  - b) Classify the 8085 microprocessor instructions according to the task to be performed. Give one example for each. 10
  3. a) Define instruction cycle, machine cycle and T-state. How much time is required to execute the instruction MVI B, 32H in 8085 microprocessor? 8
  - b) Write a program to add two 16 bit numbers and result may be 24 bit. Store the result in the three consecutive memory locations. Mention the function of each mnemonics. 12
  4. a) Briefly explain the different system buses in CPU. 6
  - b) What are the functions of control unit and ALU in CPU? 6
  - c) Mentions the functions of different registers in CPU. 6
  - d) What is the function of ALE signal in 8085 microprocessor? 2
  5. a) What are the batch operating system and multiprogramming operating system? 5
  - b) How can you differentiate real time system from time sharing system? 5
  - c) How many layers are there in operating systems? Write the names of different layers. 4
  - d) What are the information contained in DOS boot record? What information about a file is contained in a directory entry of 32 bytes? 6

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|----|----|--|---|
| 6. | a) | How many interrupts are there in operating system? What are the functions of these interrupts in operating system?                         | 6 |
|    | b) | What is NTFS? Distinguish between NTFS and FAT systems.  | 4 |
|    | c) | What are the differences between active and passive data dictionary?   | 4 |
|    | d) | How can you distinguish the different layers with respect to their typical operations?   | 6 |
| 7. | a) | 'In heap file system, it has slow retrieval of record'- can you overcome this problem with the help of another file system and if so, how? | 5 |
|    | b) | How can you distinguish 'Paging' and 'Segmentation' in virtual storage management?   | 5 |
|    | c) | 'Data redundancy, data inconsistency and security are the most important disadvantages of conventional file oriented system.' – Justify.   | 6 |
|    | d) | What are the different types of UNIX file system? What is the output of the following UNIX command: - \$ ls -al?                           | 4 |
| 8. | a) | What do you mean by data field, records and files? How are they related to data dictionary?  | 6 |
|    | b) | How many levels are there in ANSI – SPARC three-tier database architecture? How are they related to this architecture?                     | 4 |
|    | c) | What is virtual storage? How is the dynamic address translation mechanism related to virtual storage?                                      | 5 |
|    | d) | What are the advantages of variable length records over fixed length records of a file organization?                                       | 5 |