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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech I Year II Semester Regular & Supplementary Examinations October-2022
FUNDAMENTALS OF DIGITAL COMPUTING SYSTEMS

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

1 Distinguish primary storage and secondary storage. What is each type used for? **L2 12M**

OR

2 a What are the major considerations and factors that would be important while buying a computer? Justify your answer. **L5 6M**

b List the types of computers and write short notes of each computer. **L1 6M**

UNIT-II

3 a Explain the relationship among the following words: system, environment, boundary and interface with a neat sketch. **L2 5M**

b With an example, discuss the relationship between a system and its environment. **L2 7M**

OR

4 a Sketch the partial view of business application architecture. **L3 3M**

b Illustrate Facebook's application architecture and explain how it processes the user application requests. **L2 9M**

UNIT-III

5 a Create addition and multiplication tables for base 12 arithmetic. Use alphabetic characters to represent digits 10 and larger **L6 8M**

b Show the results after performing the following binary divisions:
(i) $(1010001001)_2$ by $(110)_2$ (ii) $(11000000000)_2$ by $(1011)_2$ **L3 4M**

OR

6 a Show the results after performing the following binary additions: i) $(101101101)_2$ + $(10011011)_2$ ii) $(110111111)_2$ + $(110111111)_2$ iii) $(11010011)_2$ + $(10001010)_2$ iv) $(1101)_2$ + $(1010)_2$ + $(111)_2$ + $(101)_2$ **L3 8M**

b Tabulate the numbers up to 15 which can be represented in base-2, base-8, base 10 and base -16. **L2 4M**

UNIT-IV

7 a Write a short note on PNG & JPEG image formats. **L2 6M**

b Briefly explain the three standards that are used in common for alphanumeric characters. **L2 6M**

OR

8 With a neat sketch, describe how an A-to-D converter converts audio into binary data. **L2 12M**

UNIT-V

9 a Convert the following decimal numbers into BCD and calculate the value by adding them: 24 and 37 **L2 6M**

b Calculate the result by performing addition of the following two floating point numbers and round the result to five places of precision. **L3 6M**

i) 05199520 ii) 625.2035 iii) 1024.775E2
+04967850 +25.7585 +512.225E0

OR

10 a Illustrate the structure of Typical 32-bit & 64-bit Floating Point Format. **L2 6M**

b Convert the decimal number 253.75 to 32-bit IEEE 754 floating-point form. **L3 6M**

*** END ***