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

B.Tech I Year II Semester Regular Examinations May-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 a Interpret the following terms: (i) Computer network (ii) Internet L1 4M
 b Briefly explain the communication component of a computer system. L2 4M
 c Sketch the IPO model and describe its functional blocks. L3 4M

OR

- 2 a Describe the early work for the development of modern operating systems. L1 6M
 b Discuss the various types of network media, network hardware and protocols. L2 6M

UNIT-II

- 3 a Explain the relationship among the following words: system, environment, boundary and interface with a neat sketch. L2 6M
 b With few real time examples, explain the need of distributing the computing capability within organizations or to other organizations. L2 6M

OR

- 4 a With the help of diagram explain how multiple servers offering different services on the same network. L2 4M
 b Briefly discuss the major advantages and risks to an organization when considering the adoption of cloud computing. L2 8M

UNIT-III

- 5 a Calculate the decimal value of the following binary numbers L4 6M
 (i) $(1100101.1)_2$ (ii) $(1110010.11)_2$ (iii) $(11100101.1)_2$
 b Show the results after performing the following binary divisions: L3 6M
 (i) $(1010001001)_2$ by $(110)_2$ (ii) $(11000000000)_2$ by $(1011)_2$

OR

- 6 a Discuss various number systems of a computer. L2 6M
 b Using the division method, convert the following decimal numbers: L2 6M
 (i) $(13750)_{10}$ to base 12 (ii) $(6026)_{10}$ to hexadecimal (iii) $(3175)_{10}$ to base 5

UNIT-IV

- 7 a Summarize various types of common data that can be represented in a computer. L2 6M
 b List the five simple data types that are provided in most high-level programming languages and write a short note on each datatype. L1 6M

OR

- 8 a Define image metadata. Give at least three examples of metadata that would be required for a bitmap image. L2 6M
 b Why images must be stored and manipulated as bitmap images? Justify your answer. L5 6M

UNIT-V

- 9 a Define nine's complement, ten's complement and explain the relation between them. L2 6M
 b Briefly explain about IEEE 754 Standard. L2 6M

OR

- 10 a Define one's complement, two's complement and explain the relation between them. L3 6M
 b Determine the 16-bit 2's complementary binary representation for the decimal numbers 2021 and -2021. L3 6M

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