GURUDAS COLLEGE
INTERNAL EXAMINATION,2020
COMPUTER SCIENCE (HONOURS)
(1+1+1 new regulations)
Part I Paper I
THEORY

F.M=100

Answer Question No. 1 and any 4 from the rest

1. **Answer any four Questions (4x5)**
   a. Draw the Schmitt Trigger circuit with input and output diagram.
   b. What are the differences between ideal OPAMP and Practical OPAMP ?
   c. What is meant by Duality in Boolean Algebra?
   d. What is the difference between a virus and Worm.
   e. Convert $(FACE)_{16}$= $()_2$ =$()_8$.State and explain De Morgan's Theorem.
   f. Distinguish between combinational and sequential circuit.
   g. Define instruction cycle? What is DMA?
   h. What is indirect addressing? How is it implemented.

2. a. Draw the Bridge Rectifier and explain the function
   b. Discuss the effects of negative feedback. How does negative feedback introduce stability of gain?
   c. Draw the output characteristic of an N-P-N transistor connected in common emitter mode and explain the different regions of its operations. [8+7+5]

3. a. What is memory partition ? how does it facilate in multiprogramming? Discuss briefly.
   b. What is virtual memory? State advantages and limitations of virtual memory.
   c. What do you mean by logical and physical address space?
   d. Why is the shell is not part of a kernel?

   [2+6+2+5+3+2]

4. a. Define multimedia. List out the building blocks of multimedia.
   b. Briefly describe the main features that distinguish between micro computer, mini computer and main frame computer.
   c. Write a short note on computer virus.
   d. State differences between High level languages and low level languages.
   e. Define linking. [2+2+6+4+4+2]

5. a. Briefly State the characteristics of Primary device and secondary device.

b. Why is compiler required? Why is it important to standardize a language.

c. Write short notes on any two types of System software.

d. State the advantages and limitations of machine languages?

[5+2+3+5+5]

6. a. Draw the circuit diagram of 2x1 MUX using basic gates. Perform 87-25 using 2's complement arithmetic

b. Write down the characteristic expression of J-K Flip Flop. Show how a J-K Flip Flop converted into a T- Flip Flop.

c. Explain the working of Master Slave J-K Flip-Flop with a circuit diagram.

[3+4+3+4+6]

7. a. Design a synchronous counter using T flip flop which will count the following sequence , 1-3-5-7-1-3….Draw the appropriate circuit diagram along with excitation table.

b. Design a multiplier to multiply two 2 – bit binary numbers using a suitable decoder.

c. Design a 16x1 multiplexer using only 4x1 multiplexers. Draw the appropriate circuit diagram

[(5+5)+5+5]

8. a. Name four registers of digital computer and explain their functions.

b. Explain DMA transfer in a computer system with a diagram.

c. Explain the operating principal of direct mapping of cache memory.

[4+(5+ 3)+8]

9. a. Compare and contrast between I/O mapped I/O and memory mapped I/O.

b. What is addressing mode? Explain any five addressing modes with examples.

c. What do you mean by bus arbitration? Explain polling and independent requesting Bus arbitration schemes briefly with proper diagram. [3+2+8+(1+3+3)]

Send the Scanned answer scripts to the following mail id: csexam.cmsa3@gmail.com