

ANDHRA UNIVERSITY

SCHOOL OF DISTANCE EDUCATION

ASSIGNMENT QUESTION PAPER 2020-2021

PGDCPA (First semester)

DISCRETE MATHEMATICAL STRUCTURES

Marks 20

**Answer All questions. All question carry equal marks.**

1. Show that the function

$$f(x) = \begin{cases} \frac{x}{2}, & \text{where } x \text{ is even} \\ \frac{x-1}{2}, & \text{when } x \text{ is odd} \end{cases} \text{ is primitive recursive.}$$

2. Prove that for any commutative monoid  $(M, *)$ , the set of idempotent elements of  $M$  forms a submonoid.
3. State and prove the Euler/s formula.
4. Prove that a finite connected graph is Eulerian if and only if each vertex has even degree.

$$\neg (P \vee (Q \vee R)) \Leftrightarrow ((P \vee Q) \wedge (P \vee R))$$

5. Obtain the principal disjunctive normal form of

$$P \rightarrow ((P \rightarrow Q) \wedge \neg (\neg Q \vee \neg P))$$

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**COMPUTER ORGANIZATION**

Marks 20

**Answer All questions. All question carry equal marks.**

1. With flow charts explain how floating point addition is performed in a computer?
2. Distinguish between combination logic and sequential logic.
3. Explain the construction of a basic memory cell and also explain with diagram, the construction of a 4 \*4 RAM.
4. What are different modes of data transfer? Explain each model in detail.
5. How to alleviate speed mismatch between I/O units and memory? Explain.

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**ASSIGMENT QUESTION PAPER 2020-2021**  
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**DATA COMMUNICATIONS**

Marks 20

**Answer All questions. All question carry equal marks.**

1. Define modulation. What are the different types of modulation techniques? Explain with examples.
2. Compare and contrast the various packet switching techniques.
3. Explain about control field on SDLC protocol.
4. Explain about RS-232 interface.
5. Explain briefly routing in Internet.

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**LANGUAGE PROCESSORS**

Marks 20

**Answer All questions. All question carry equal marks.**

1. Explain basic 360 instruction formats.
2. Explain various databases used in assemblers and write the data formats.
3. Discuss the design of direct linking loader.
4. Explain conditional macro with suitable example.
5. Explain Interrupt handling.

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**DATA STRUCTURES AND PROGRAMMING METHODOLOGY**

Marks 20

**Answer All questions. All question carry equal marks.**

1. Differentiate between call by value and call by reference.
2. Write algorithms for various operations performed on queues with an example.
3. Write a C program to convert a post fix expression into prefix expression.
4. What are the advantages of adjacency matrix representation of graphs?
5. Define spanning tree of an undirected graph.