

No Preview
Available

Total No. of Question : [4]

Registration No. :

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Programme Name : Computer Science & Engineering(DS)
Regular S.Y.B.Tech. ESE (A.Y. 2023-24) Sem. III Nov.2023
III SEMESTER (2022 BATCH)
201DSL202-Discrete Mathematics and Social Graphs

Duration : [11:00 AM - 01:00 PM]

Date : 23 Nov, 2023

Day : Thursday

Marks : 50

Instructions :

(Q1) All Questions are compulsory. [20.0]

- (1.1) 1) Define Duality Law and Well-formed formula with their Rules. [7.0]
2) Without using truth table show that $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \Leftrightarrow R$

CO :- C202.1

Blooms Taxonomy :- Remember, Understand

- (1.2) 1) Define Equivalence relations, POSET and Function. [7.0]
2) Let $X = \{1, 2, 3, 4, 5, 6, 7\}$ and $R = \{(x, y) | x-y \text{ is divisible by } 3\}$
Show that R is equivalent relation. Draw the graph of R and give matrix R.

CO :- C202.2

Blooms Taxonomy :- Remember, Understand

- (1.3) 1) Define Lattice with two examples and State its properties. [7.0]
2) Define Boolean function and Boolean algebra.

CO :- C202.3

Blooms Taxonomy :- Analyze, Evaluate

(Q2) All Questions are compulsory. [10.0]

- (2.1) 1) Define following with one example [4.0]
i) Pseudo graph ii) Complete graph
OR
2) State and Prove Handshaking Lemma

CO :- C202.4

Blooms Taxonomy :- Understand, Apply

- (2.2) Explain Storage representation and manipulation of Graphs. [6.0]

CO :- C202.4

Blooms Taxonomy :- Understand, Apply

(Q3) All Questions are compulsory. [10.0]

(3.1) Explain Scatter plot , Histogram and Line plot. [3.0]

OR

Define Network X , Graph and Directed Graph in Network X

CO :- C202.4

Blooms Taxonomy :- Understand, Apply

(3.2) Define Graph and Directed Graph. Write brife note on Data Visualization in Python. [7.0]

CO :- C202.4

Blooms Taxonomy :- Understand, Apply

(Q4) Attempt any two out of three questions. [10.0]

(4.1) A two digit number is formed with digits 2, 3, 5, 7, 9. Repetition of digit is allowed. Find the probability of following event. [5.0]

a) A prime number

b) An even number

c) A multiple of 5

d) A number is in between 35 to 80.

CO :- C202.5

Blooms Taxonomy :- Apply, Analyze

(4.2) State and Prove Pigeonhole Principle. [5.0]

CO :- C202.5

Blooms Taxonomy :- Apply, Analyze

(4.3) A box contains 6 white balls and 5 red balls. in how many ways 4 balls can be drawn from the box if 1)They are to be any color. 2) All the balls to be of same color. [5.0]

CO :- C202.5

Blooms Taxonomy :- Apply, Analyze
