K25FY3118 Pages: 2 Reg No:.....
Name:.....

Third Semester FYUGP Degree Examination NOVEMBER 2025

KU3DSCCAP201 - DISCRETE MATHEMATICS

2024 Admission onwards

Time : 2 hours Maximum Marks : 70

Section A

Answer any 6 questions. Each carry 3 marks.

1. Write a short note on Euler Graphs?
2. Suppose that planar graph has 20 vertices, each of degree 3. Into how many regions does a representation of this planar graph split the plane?
3. Define connected graph with example.
4. Explain the properties of a tree with examples
5. What is Traveling salesman's problem?
6. With the help of an example explain bijective function.
7. Define function. Give one example.
8. Let A=3,4,5 and R: A→A. R= (3,3), (3,4), (4,5) . Find the transitive closure of this relation.

Section B

Answer any 4 questions. Each carry 6 marks.

9. Define complement of a graph and self complementary graph with example.
10. Write the applications of graph theory.
11. Draw a graph wih 6 vertices. Apply BFS to the graph . Write the order of traversal.
12. What is an inverse function?Let A = 1,2,3.If f: A → A such that f(1)=2,f(2)=3 and f(3)=1.Find the inverse function.
13. Let P=1,2,3,6 and defined a relation aRb if and only if a / b.Check whether this relation is a POSET.
14. With the help of an example explain symmetric & antisymmetric relation.

Section C

Answer any 2 questions. Each carry 14 marks.

15. Define and explain the fundamental laws of set theory with suitable examples.

16. a) Explain any three logical connectives with truth table.
    b) Explain about Tautology, contradiction and contegency with example.

17. Explain the different methods of graph representation in memory. Define chromatic number of a complete graph Kn