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320846(20)

B. E. (Eighth Semester) Examination, 2020

APR-MAY

(New Scheme)

(Civil Engg. Branch)

COMPUTER APPLICATIONS in CIVIL ENGINEERING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) from each question is compulsory. Attempt any* ***two*** *parts from parts (b), (c) and (d) of each question. Use C++ programming language to solve all the questions. Assume suitable data where necessary.*

Unit-I

1. (a) Write the expression for Reynolds number in C++. 2

(b) Write a program to compute friction for turbulent flow. 7

(c) Write a program to compute discharge through open rectangular channel, if depth is known. 7

(d) Draw a flow chart to check whether the flow is laminar or turbulent. 7

Unit-II

2. (a) Write expression to convert degree into radians and radians into degree. 2

(b) Write a program to convert whole circle bearing to reduced bearing. 7

(c) Write the program for computation of reduced levels using rise and fall method. 7

(d) Write an algorithm to convert whole circle bearing to Quadrantal bearing. 7

Unit-III

3. (a) Write the expression for computing porosity in C++. 2

(b) Write a C++ program to compute safe bearing capacity of soil, assuming that the depth of water table is at the level of foundation. 7

(c) Write an Algorithm for the determination of horizontal and vertical hydraulic conductivities for flow through anisotropic soils. 7

(d) Write a program to determine the one dimensional pre consolidated settlement under compacted fill. 7

Unit-IV

4. (a) Write the expression in C++ for computing bending moment at the fixed end of a beam carrying uniformly distributed load. 2

(b) Write a program to compute deflection at every quarter point in a simply supported beam carrying a uniformly distributed load. 7

(c) Write an algorithm to compute bending moment and share force at every quarter point in a simply supported beam carrying a uniformly distributed load (udl). 7

(d) Write a C++ program to compute the support reactions in a simply supported beam subjected to point load. 7

Unit-V

5. (a) Draw a flow chart for moment of resistance of a balanced section. 2

(b) Write a program to compute the effective area of single angle tension members, connected by one leg to the gusset plate. 7

(c) Write a program to compute area of steel in an under reinforced section by limit state method, if factored moment at a section is given. 7

(d) Write an algorithm to compute the permissible stress in bending compression for a laterally unsupported beam of given section. 7