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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2022

B.Tech-IV Semester (BI)

COURSE CODE: 18B11CI415

MAX. MARKS: 25

COURSE NAME: OBJECT ORIENTED PROGRAMMING

COURSE CREDITS: 3

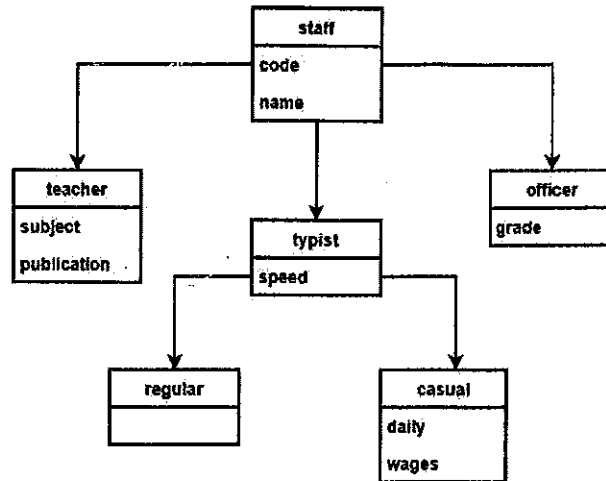
MAX. TIME: 1 Hour 30 Min

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q. No. 1 Discuss the different ways by which we can access the public member functions of an object? 3 Marks
- Q. No. 2 When do we make a virtual function "pure"? What are the implications of making a function a pure virtual function? 3 Marks
- Q. No. 3 What are the different forms of inheritance? Give an example of each 3 Marks
- Q. No. 4 We know that a private member of a base class is not inheritable. Is it anyway possible for the object of a derived class to access the private members of the base class? If yes, how? Remember base class cannot be modified. 3 Marks
- Q. No. 5 What are the implications of the following two definitions? 3 Marks
- (a) class A: public B, public C {.....};
- (b) class A: public C, public B {.....};
- Q. No. 6 An education institution wishes to maintain a database of its employees. 5 Marks
- The database is divided into several classes whose hierarchical relationships are shown in the figure below. The figure also shown the minimum information required in each class. Specify all the classes and define functions to create the database and retrieve individual

information as and when required.

Use of constructor is compulsory.



Q. No. 7 Create a base class called shape. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called triangle and rectangle from the base shape. Add to the base class, a member function get_data() to initialize base class data members and another member function display_area() to compute and display the area of figures. Make display_area() as a virtual function and redefine this function in the derived classes to suit their requirements. 5 Marks

Using these three classes design a program that will accept dimensions of a triangle or a rectangle respectively and display the area. Remember the two values given as input will be treated as lengths of two sides in the case of rectangles, and as base and height in the case of triangles, and used as follows

Area_rectangle= X * Y

Area_triangle= $\frac{1}{2} * X * Y$

Area_rectangle= X * Y

Area_triangle= $\frac{1}{2} * X * Y$