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U218-146(ESE)

DECEMBER 2018/ENDSEM

S. Y. B. TECH. (IT); (SEMESTER - I)

COURSE NAME: Problem Solving and Object Oriented Programming

COURSE CODE: ITUA21176

(PATTERN 2017)

Time: [2 Hours]

[Max. Marks: 50]

(*) Instructions to candidates:

- 1) Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

Q.1) a) Evaluate the following equations, given the values A=12, B=3, C=6, D=2

- | | | |
|---------------------------------|--|------------------------------------|
| 1) $F = A + B / C - D^{\wedge}$ | 2) $F = (A + B) / C - D^{\wedge}2$ | 3) $F = A + B / (C - D^{\wedge}2)$ |
| 4) $F = (A + B) \text{ MOD } C$ | 5) $F = (A + B) \setminus D^{\wedge}2$ | 6) $F = C \text{ MOD } D * A$ |

[6 marks]

OR

b) Discuss examples of problems.

[6 marks]

Q.2) a) Develop a solution to convert Fahrenheit temperature to Celsius. Use Fahrenheit temperature of 80 degrees to test the solution. Formula for conversion is $C = 5/9(F - 32)$

[6 marks]

OR

b) A sweater is on sale for 25% off the original price. The original price is \$50. Develop a solution to print and calculate sale price.

[6 marks]

Q.3) a) Write a program C++ using inline function to find the multiplication values and the cubic values.

[6 marks]

OR

b) Create a class account having data members and member functions as

Data members: 1) Name of depositor 2) account number
3) Type of account 4) Balance amount in the account

Member functions: 1) To assign initial values 2) To deposit an amount
3) To withdraw an amount after checking the balance
4) To display name and balance
write a logic for functions [6 marks]

Q.4) a) What is meant by implicit and explicit type casting? [4 marks]

OR

b) What is inheritance? Explain with the example. [4 marks]

Q. 5) a) Write C++ program to swap two numbers using function template. [6 marks]

b) Explain pure virtual function with syntax [4 marks]

c) Does the C++ supports generic programming? Explain. [4 marks]

OR

Q.6) a) Write a C++ program for function template that returns the maximum of two values. [6 marks]

b) Discuss the rules for virtual function. [4 marks]

c) Discuss the need of virtual destructor. [4 marks]

Q.7) a) Explain the default catch statement with example. [6 marks]

b) Write statements using seekg() to achieve the following: [4 marks]

(a) To move the pointer by 15 positions backward from current position

(b) To go to the beginning after an operation is over

(c) To go backward by 20 bytes from the end

(d) To go to byte number 50 in the file

c) What is the difference between opening a file with a constructor function and opening a file with open() function? When is one method preferred over the other? [4 marks]

OR

Q.8) a) Explain following functions: [6 marks]

i) seekg()

ii) seekp()

iii) tellg()

iv) tellp()

b) Differentiate between getline and cin. [4 marks]

c) Draw the diagram to depict hierarchy of C++ stream classes. [4 marks]