PD-367
(513) M.A./M.Sc. MATHEMATICS (THIRD-SEMESTER)
Examination DEC.- 2020
Compulsory/Optional
Group-
Paper- VIII

Name/Title of Paper- FUNDAMENTALS OF COMPUTER SCIENCE - 1

Time:-Three House.] [Maximum Marks:080

[Minimum Marks 29

नोट : दोनो खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित है।

Note: Answer from Both the Section as Directed. The Figures in the right-hand margin indicate marks.

Section-A

Q.1. Choose the correct answer or fill in the blanks as required: (1x10=10)

(a) Using the concept of encapsulation security of the data is ....
(i) Ensured to some extent. (ii) Purely ensured
(iii) Not ensured. (iv) Very low

(b) The principal of abstraction ....
(i) is used to achieve oops. (ii) Is used to avoid duplication.
(iii) Use abstraction at its minimum. (iv) Is used to remove longer coder.

(c) The combination of abstraction of the data and code is viewed in ....
(i) Inheritance (ii) Object (iii) class (iv) Interfaces.

(d) the object cannot be ....
(i) Passed by copy (ii) passed by value
(iii) Passed as function (iv) Passed by reference.

(e) Is it true to use polymorphism in the c programming language?
(i) True (ii) False;

(f) Which of the following statement of a program is not right?
(i) Class teacher { } ; Teacher S [5] (ii) Class teacher { } S [ ] ;
(iii) Class teacher { } S ; (iv) Class teacher { } ; S;

(g) Which class cannot cleate its instance
(i) Parent class (ii) Nested class
(iii) Anonymous class (iv) Abstract class

(h) Which operator overloads using the friend functions.?
(i) * (ii) ( ) (iii) - > (iv) =

(I) Which of the following feature is also known as runtime binding or late binding?
(i) Dynamic typping (ii) Dynamic loading
(iii) Dynamic binding (iv) Data hiding.

(j) What is the extra feature is classes which was not in the structure?
(i) Member function (ii) Data members
(iii) Public access specified (iv) Statics data allowed.

2. Answer the following questions; 2x5
(a) What is oops? (b) What is a class
(c) Write basic concepts of oops? (d) What is encapulation?
(e) What is an object?

SECTION - B

Answer any five of the following question: 12x5

3. How do procedural programming and oop differ?
4. What is data structure? Explain their types?
5. What is an array? Write multidimensional array?
6. What is a stack? What is the application of stack?
7. How is a stack different from a queue? Write applications of queue.
8. Explain an AVL tree and Binary search tree?
9. Explain open and close hashing.
10. Write algorithms for shell sort and be ap sort?
11. Write short notes on the following-
(a) B-tree (b) Virtual Inheritance.
12. Explain Nested classes and pointer.