

YMCA UNIVERSITY OF SCIENCE & TECH., FARIDABAD
M.TECH EXAMINATION (Under CBS), DEC – 2017
COMPUTER SYSTEM SOFTWARE (MTCE-17-101)

Time: 3 hrs

M. Marks: 75

NOTE: Part -1 is compulsory and attempt any four from part - 2:

PART – 1
(Each question is for 1.5 marks in part - 1)

- Q. No. 1 a) List various characteristics of procedure-oriented programming.
- b) Why it is considered good practice for declaring data members as private?
 - c) Define the terms class & object. What is the relation between the two?
 - d) How do we denote recursive association? Explain it through a simple class diagram
 - e) What is the use of Symbol table? Give an example.
 - f) What is back patching in context of an assembler?
 - g) Why do we require virtual dotr() ? Give an example.
 - h) How is an interpreter different from a compiler?
 - i) How inheritances of protected members differs from private members?
 - j) What are the two major phases of a language translation?

PART - 2

Q. No. 2(a) Differentiate between the following (give examples):

- (i) Virtual and Pure Virtual functions
- (ii) Static and Dynamic binding (3*2)

(b) Consider the following class definitions

```
class base { public: void virtual calculate();};  
(i) class derive: public base { public : int x; public: void virtual calculate();};  
(ii) class derive: public base(public : int x; public : void calculate());}
```

If d is an object of type derive what would following statements produce in case (i) & (ii) and why?

```
base *pa = &d; pa ->calculate(); pa-> x = 4;  
and  
derive *pd = &d; pd ->calculate();pd->x=5; (4.5*2)
```

Q. No 3(a) What is meant by Aggregation? How is it different from Composition? Which one would be implemented using LIST data-structure? (7)

(b) Differentiate between inheritance of interfaces and inheritance of implementation with the help of an example (8)

Q No 4 (a) Why assembler is designed as two pass? Discuss the various data structures used by the assembler (8)

(b) What is Lexical analysis? Explain its working (7)

Q No 5 (a) Give your comments on the following phrase in the light of protected members
'A class is closed as well as open' (7)

b) Prepare instance diagram from the object diagram given in Fig. 1

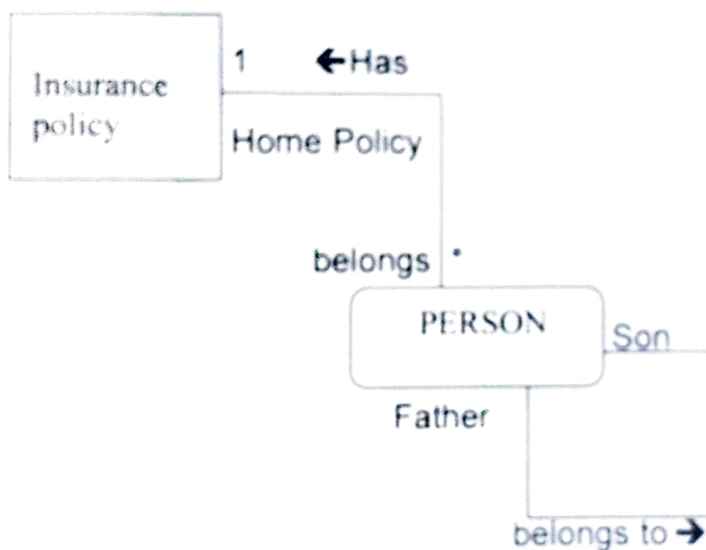


Fig 1

(8)

Q No 6 What is use Case model? Design and illustrate the use case of various activities done in a on-line examination system. (15)

Q No 7 Write short notes on any two of the following

(i) What are literals? How are they different from constants?

(ii) Liskov Substitution Principle

(iii) What is relative loader? Explain its working

(7.5*2)