GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022
B. Tech Degree Examinations, December – 2020
(Seventh Semester)
BCSPE 7045 / BITPE 7045 – Object Oriented Analysis and Design
(CSE & IT)

Time: 2 hrs   Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions)   **(1 x 10 = 10 Marks)**

Q.1. Answer *ALL* questions   [CO#] [PO#]

a. The essential characteristics of an object that distinguish it from all other kinds of objects and thus provide crisply defined conceptual boundaries, relative to the perspective of the viewer is called   1   1

   (i)Encapsulation   (ii)Modularity
   (iii)Hierarchy   (iv)Abstraction

b. An Object-oriented program is structured as a community of interacting agents, called   1   2

   (i) Classes   (ii) Objects
   (iii) Functions   (iv) Statements

c. The method of design encompassing the process of object oriented decomposition and a notation for depicting both logical and physical and as well as static and dynamic models of the system under design is known as   2   1

   (i) Object- Oriented Programming   (ii) Object- Oriented Analysis
   (iii) Object- Oriented Design   (iv) Object Abstractions

d. Which of the property of an object encompasses all of the properties of the object plus the current values of each of these.   2   2

   (i)Behaviour   (ii) State
   (iii) Identity   (iv) Class

e. Which of the following statements about a constructor is False?   2   2

   (i) We cannot refer to their addresses.   (ii) They cannot be inherited, though a derived class can call the base class constructor.

   (iii) An object with a constructor can be used as a member of a union.   (iv) Constructors cannot be virtual.

f. Which model describes the static structure of the system using object classes and their relationships?   3   1

   (i) Sequence model   (ii) Structural model
   (iii) Subsystem model   (iv) Dynamic model

g. Which of the following UML diagrams has a static view?   3   2

   (i) Collaboration   (ii) Use case
   (iii) State chart   (iv) Activity

h. Which diagram in UML shows a complete or partial view of the structure of a modeled system at a specific time?   3   1

   (i) Sequence Diagram   (ii)Class Diagram
   (iii)Collaboration Diagram   (iv) Object Diagram

i. A component diagram shows the organization and _____ among a set of components   4   2

   (i) relationships   (ii) dependencies

(iii) grouping   (iv)behavioural

j. Consider a beverage machine. if the actor is 'customer' and the scope is 'machine'. What is most likely to be found in the main scenario of the use case 'get drink'?   4   3

(i) enter choice – if drink available then show price – put in coins – if paid enough then deliver drink   (ii) customer enters choice – machine shows price – customer puts in coins – machine delivers drink

(iii) machine sends price to LCD display – customer put coins in slot – coin mechanism verifies amount and tells machine controller – machine controller activates boiler   (iv) enter choice – show price – put in coins – deliver drink

PART – B: (Short Answer Questions)   (2 x 5 = 10 Marks)

Q.2. Answer _ALL_ questions   [CO#]   [PO#]

		[CO#]	[PO#]
a.	What is the significance of UML?	1	1
b.	Differentiate cohesion and coupling.	2	2
c.	What is the purpose of extends and include relationships in use case diagram?	3	2
d.	What are the strengths and weaknesses of sequence and collaboration diagram?	4	1
e.	Classify the three kinds of actors in Use case.	3	2

PART – C: (Long Answer Questions)   (6 x 5 = 30 Marks)

Answer _ANY FIVE_ questions   Marks   [CO#]   [PO#]

		Marks	[CO#]	[PO#]
3.	Differentiate Structured approach from Object oriented approach.	(6)	1	2
4.	Identify all the attributes and methods of the Cheque book object. Write a short description of services that each method provides.	(6)	1	4
5.	Explain the Unified Approach to Software Development in detail.	(6)	2	2
6.	By considering the Library management system, Perform the object oriented System Development and give the use case model for the same (use include, extend and generalization).	(6)	2	3
7.	Draw the use case diagram for the following specifications:	(6)	3	2

A Coffee vending machine dispenses coffee to customers. Customers order coffee by selecting a recipe from a set of recipes. Customers pay for the coffee using coins. Change is given back, if any, to the customers. The Service staff loads ingredients (coffee powder, milk, sugar, water, chocolate) into the coffee machine. The service staff can also add a recipe by indicating the name of the coffee, the units of coffee powder, milk, sugar,

water and chocolate to be added as well as the cost of the coffee.

8. Design the Class diagram for Airline Reservation System? Find and draw conceptual classes for the same? (6) 3 3

9. Illustrate about UML deployment and component diagrams. (6) 4 3

10. Describe state machine diagram and modelling with an Example. (6) 4 3

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