

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: MCA
Program: Object Oriented Analysis and Design using UML
Course Code: CSEG7013

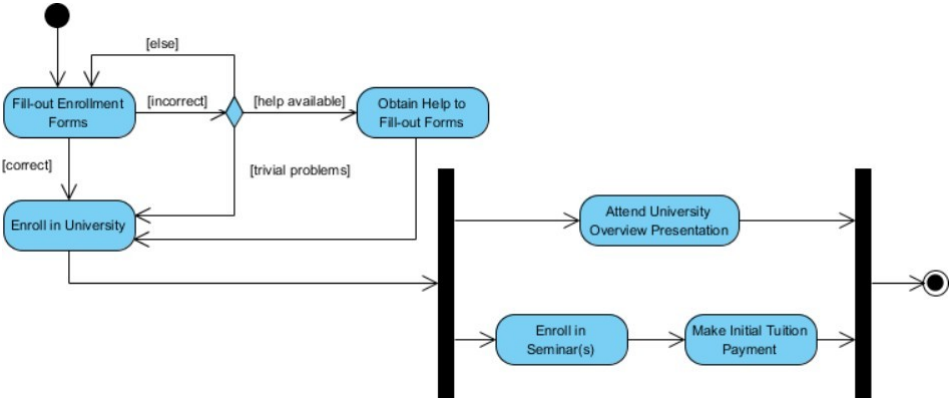
Semester : 2
Time : 03 hrs.
Max. Marks: 100

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	<p>Identify the Incorrect statements based on the below use case diagram:</p> <p>The diagram shows an actor 'Accountant' connected to five use cases: 'User ID', 'Basic Salary', 'HRA', 'Bonus', and 'Penalty/Fine'. 'Basic Salary', 'HRA', 'Bonus', and 'Penalty/Fine' are all connected to a 'Salary Calculator' use case. The 'Salary Calculator' is connected to an actor 'System'.</p>	4	CO1
	<p>a) Accountant and System both are acting like primary actors b) There is inheritance relationship between HRA and salary calculator c) System can access the user ID d) Without making the system, this use case diagram is</p>		

	invalid		
Q2.	<p>Identify the incorrect statements:</p> <ul style="list-style-type: none"> a) Analysis focuses on understanding the solution and Design focuses on understanding the problem. b) State model's viewpoint is "life history of objects" c) The static parts of a UML diagram are represented by classes, interfaces, objects, components & nodes. d) Object oriented modeling approach doesn't allows resuability of analysis, design and programming results. 	4	CO2
Q3	<p>Consider the following sequence diagram.</p> <pre> sequenceDiagram participant A as a:A participant B as b:B participant C as c:C A->>B: msg1 B->>C: msg2 B->>C: msg3 </pre> <p>Identify the incorrect statements:</p> <p>Statement 1: The class diagram below is consistent with the sequence diagram</p> <pre> classDiagram class A class B class C A --- B B --- C B -- C : msg1 A -- B C -- A : msg2 C -- B : msg3 </pre> <p>Statement 2: The class diagram below is consistent with the sequence diagram.</p> <pre> classDiagram class A class B class C A --- B B --- C A -- B : msg1 B -- C : msg2 B -- C : msg3 </pre> <p>Statement 3: Message msg2 is received before msg3 has been sent.</p> <p>Statement 4: Message msg2 is sent after msg1 has been received.</p>	4	CO3, CO4
Q4	On February 21, 2014 user Ettozyame has asked the following question on the popular Q&A site StackOverflow: "I want to know in detail about the	4	CO5

	<p>difference between alt and opt fragment in sequence diagram, they seem similar, I can't distinguish them. Anyone knows about this thing?" Which of the following statements are correct?</p> <p>Statement 1: alt is used to described alternative scenarios. Only one of the options will be executed. opt is used to describe an optional step.</p> <p>Statement 2: alt is more used for several choices, like a switch, while with opt code will be executed or not.</p> <p>Statement 3: an opt fragment cannot be enclosed in other combined fragments such as strict or par, while alt can be enclosed in such fragments.</p> <p>Statement 4: an alt fragment cannot be enclosed in other combined fragments such as strict or par, while opt can be enclosed in such fragments.</p>		
Q5	<p>Arrange the below sequences for the activity diagram in the correct order.</p>  <p>1. An applicant wants to enroll in the university. 2. The registrar inspects the forms 3. The applicant hands a filled-out copy of enrollment Form 4. The registrar helps the student to enroll in Seminars 5. The registrar informs student to attend in university overview presentation. 6. The registrar determines that the forms have been filled out properly. 7. The registrar asks the student to pay for the initial tuition.</p>	4	CO4
SECTION B (4Qx10M= 40 Marks)			
Q6	Describe the strategies used to identify conceptual class. Describe the steps to create domain model used for representing conceptual classes.	10	CO4
Q7	What do you understand by modeling? Explain the concept of “views” in UML?	10	CO1
Q8	What is the relationship between sequence diagrams and use cases? Take an example to show the relationship, highlighting the advantages.	10	CO3
Q9	For an atm system, every user has to be validated with a PIN number to make a transaction. A customer is allowed three times to validate card giving the correct PIN number. Show the component or deployment	10	CO5

	<p>diagram representation for the same elaborate the ‘validate user’ use case via use case diagram.</p> <p style="text-align: center;">OR</p> <p>Describe the strategies used to identify conceptual class. Describe the steps to create domain model used for representing conceptual classes.</p>		
<p>SECTION-C (2Qx20M=40 Marks)</p>			
Q10	<p>a) Define Aggregation and Composition. b) What is meant by Low coupling? c) What is the use of System sequence diagram? d) Briefly explain the different phases of Unified Process. e) Explain about the next gen POS system.</p>	20	CO3, CO4, CO5
Q11	<p>Draw the use case diagram for following specification:</p> <p>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, sugar, milk, 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.</p> <p style="text-align: center;">OR</p> <p>Prepare a Class and Object diagram for a computer network consisting of three LANs. Each pair of LANs is connected through a router. LANs contain 02, 05 and 06 nodes respectively. Two LANs are CSMA/CD and one is FDDI based.</p>	20	CO2