



V SEMESTER B.TECH. (INFORMATION TECHNOLOGY)

MAKEUP EXAMINATIONS, JANUARY-FEBRUARY 2022

SUBJECT: SOFTWARE ENGINEERING [ICT 3159]

REVISED CREDIT SYSTEM

(26/02/2022)

Time: 75 Minutes

PART - B

MAX. MARKS: 20

Instructions to Candidates

Answer **ALL** the questions.

Missing data if any may be suitably assumed.

Q. No	Question	M	CLO / CO	AHEP4 LO	BL
1A	Identify suitable actors, use cases and relationship, and draw the use-case diagram for the following scenario. Write use case specifications for any one use-case. Customer can browse through the product catalog and add the items to shopping cart. He can proceed to checkout as long as his shopping cart is not empty. Customer will require to login to the system when he proceed to checkout, or he can create an account if he not yet has one. The order will charge to the credit card registered in customer's account. Customer need to provides full name, email address, phone number, credit card and billing address details when creating an account. Customer can login to the system to maintain his account information, such as changing phone number, address, and credit card details, and check the status of his orders. On receiving the order, the sales staff will process the order by charging to customer's credit card. Once the order has been charged, he will then mark the order as paid and pass to Courier Company and deliver them to customer. If the items ordered by the customer are out of stock, then the order will mark as on hold. Once the item(s) arrive, the order will be passed to Courier Company for delivery. Courier Company will pack the item with standard packaging, but if the order is marked as gift, then the items will be gift packed. If the items are damaged on arrival, the customer can return it by registering in the online shop. Courier Company will collect the item from customer and sales staff will refund the money for that item. Marketing staff is responsible to maintain the product catalog. He can also setup the promotion item list and send promotion email to customer.	5	2	5	4
1B	Draw the sequence diagram for use-case scenario "Withdraw the Cash from ATM" by identifying appropriate synchronous and asynchronous messages, object creation and deletion and fragments.	3	2	5	4
1C	How does an activity network help in project scheduling? What is a critical path with reference to an activity network? Draw the activity network for the project given in Table Q.5B. Table Q.1C.	2	5	15	3

		Activity	Predecessor	Duration					
		A	-	2					
		B	A	3					
		C	B	1					
		D	C	5					
		E	C	2					
		F	D,E	1					
		G	F	1					
2A	Identify the classes using noun phrase approach and draw the class diagrams with appropriate relationships, multiplicities etc. The attorney general’s office wants to develop a JIS, to help handle court cases and also make the past court cases easily accessible to the lawyers and judges. For each court case, the name of the defendant, defendant’s address, the crime type (Eg. theft, arson etc), when committed (date), where committed (location), name of the arresting officer, and the date of the arrest are entered by the court registrar. Each court case is identified by a unique case identification number (CIN) which is generated by the computer. The registrar assigns a date oh hearing for each case. For this the registrar expects the computer to display the vacant slots on any working day during which the case can be scheduled. Each time a case is adjourned, the reason for adjournment is entered by the registrar and he assigns a new hearing date. If hearing takes place on any day for a case, the registrar enters the summary of the court proceedings and assigns a new hearing date. Also, on completion of a court case, the summary of the judgment is recorded, and the case is closed but the details of the case are maintained for future reference. Other data maintained about a case include the name of the presiding judge, the public prosecutor, the starting date and the expected completion date of a trail. The judges should be able to browse through the old cases for guidance on their judgment. The Commercial Bankruptcy lawyers and Criminal Lawyers should also be permitted to browse old cases but should be charged for each old case they browse. Government and military lawyers need to be authenticated to browse old cases without any charge.				5	2	5	4	

2B	<p>Draw the state machine diagram for the following scenario by considering the explained object in the explanation.</p> <p>Attendance Management System is software developed for daily student attendance in schools, colleges and institutes. It facilitates to access the attendance information of a particular student in a particular class. This system will also help in evaluating attendance eligibility criteria of a student. By just a click on the mouse, the system will be able to produce the students' attendance report thus reducing the need for manual labour which is prone to human errors and time consuming. This application is built for automating the processing of attendance. It also enhances the speed of performing attendance task easily. The Student Attendance will be based on the department and section. According to the department wise and section wise the attendance will be marked for the students. It includes present, absent and leave column for each student so that they would mark the attendance like period wise. By just a click on the mouse, the system will be able to produce the students' attendance report thus reducing the need for manual labour which is prone to human errors and time consuming. The student and staff have unique user login id and password available. The student can only view the attendance record on weekly, monthly, and whole semester basis. The staff can view as well as modify the attendance record. Printing facility for attendance record is available for both students and staff.</p>	3	2	5	4
2C	<p>Assume that the size of complex type software has been estimated to be 1,20,000 lines of source code. Assume that the average salary of software engineers be Rs. 95,000/- per month. Determine the effort required to develop the software and the nominal development time. Also calculate the cost required to develop the software.</p>	2	2	5	4