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Thapar Institute of Engineering and Technology

(Deemed to be University), Patiala

Department of Computer Science and Engineering

U GRADE EXAMINATION – March 2022

BE (COE)	Course Code: UCS503
	Course Name: Software Engineering

7ᵗʰ March, 2022	Time: 5:30pm

Duration: 2 Hrs. M. Marks: 50	Name of Faculty: HAR

Note: 1. Attempt any 5 questions

2. While drawing the diagrams, if you discover that the narrative is incomplete, assume and write reasonable explanations to complete it along with the diagrams.

S.No.	Question	Marks
Q.1	For the given precedence table for project activities, conduct the critical path analysis, showing all the steps in detail. Also, highlight the critical path on the diagram.	(10)

Activity	Precedent Activity	Duration (in days)
A	--	5
B	A,B	4
C	A	6
D	C	4
E	D,G,H	7
F	A	8
G	F,C	2
H	B	5

S.No.	Question	Marks
Q.2	Describe the 7 step model of Requirements Gathering in detail, providing some examples.	(10)
Q.3	A Library Membership Automation Software (LMS) should support the following three options: new member, renewal and cancel membership. When the new member option is selected, the software should ask the member's name, address, and phone number. If proper information is entered, the software should create a membership record for the new member and print a bill for the annual membership charge and the security deposit payable. If the renewal option is chosen, the LMS should ask the member's name and his membership number and check whether he is a valid member. If the member details entered are valid, then the membership expiry date in the membership record should be updated and the annual membership charges payable by the member should be printed. If the membership details entered are invalid, an error message should be displayed. If the cancel membership option is selected and the name of a valid member is entered, then the membership is cancelled, a cheque for the balance amount due to the member is printed and his membership record is deleted. Draw a Logical DFD level 0 and level 1 for	(10)

	the above scenario.	
Q.4	Elaborate the types of requirements defined as per Quality Function Deployment (QFD) with suitable examples.	(10)
Q.5	Draw the Use Case Diagram for the Employee Hiring System for XYZ company. The company keeps records of all employees, their skills, projects assigned, and their departments. New employees are hired by the personnel manager based on data in an application form and evaluations collected from other managers who interview the job candidates. Prospective employees may apply at any time. Engineering managers notify the personnel manager when a job opens and list the characteristics necessary to be eligible for the job. The personnel manager compares the qualifications of the available pool of applicants with the characteristics of an open job, then schedules interviews between the manager in charge of the open position and the three best candidates from the pool. After receiving evaluations on each interview from the manager, the personnel manager makes the hiring decision based upon the evaluations and applications of the candidates and the characteristics of the job, and then notifies the interviewee and the manager about the decision. Applications of the rejected applicants are retained for one year, after one year these applications are purged. When hired, a new engineer completes a nondisclosure agreement, which is filed with other information about the employee.	(10)
Q.6	Consider a project with the parameters given as under: |	Count	Complexity
External inputs	15	Low
	12	High
	10	Average
External outputs	5	Low
	9	Average
	11	High
External enquiries	13	High
	10	Average
External files	17	High
	14	Low
	18	Average
External interfaces	19	Average
	13	Low | Assume 10 complexity adjustment factors are treated as Significant, and remaining other complexity adjustment factors are treated as Average. Calculate the Function Point Count, showing all the steps of calculation.	(10)
Q.7	One of the functional requirement of the Bank Management System is: The customer wants to withdraw money from his account. Write this functional requirement, in the form of User Story Card (both front and back side of card).	(10)