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JK Lakshmipat University, Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY
 End Term Examination, May 2026
 BTech CSE, Semester VI

CS1113: Software Engineering

Roll No.....

Time: 2:00 hours

Max. Marks: 30

Instructions to students:

1. Do not write anything other than your roll number on the question paper.
2. Assume suitable data wherever required and mention it clearly.

Q. 1	Perform the Requirement Engineering Process, Analysis and Design for the following Problem Statement and draw the: • Context Diagram • Data Flow Diagram • ER-Diagram • Use Case Diagrams • Activity Diagrams • Class Diagrams. Problem Statement: Intelligent University Learning & Assessment Platform Design a system that enables: • Students to: ○ Enroll in courses, access content, and submit assignments ○ Receive AI-based recommendations for learning resources ○ Participate in quizzes with adaptive difficulty • Faculty to: ○ Create and manage courses and assessments ○ Track student performance using analytics dashboards • Administrators to: ○ Manage users, roles, and academic workflows The system should also: • Support online examinations with integrity checks • Handle simultaneous submissions during deadlines • Provide real-time alerts and feedback	18 CO 1-7
Q. 2	A project is characterized by: • External Inputs = 20, External Outputs = 40, External Inquiries = 15 • Internal Logical Files = 6, External Interface Files = 4 • Weights: 4, 5, 4, 10, 7 respectively The Value Adjustment Factor (VAF) sum = 35 • Compute the Unadjusted Function Points (UFP) • Calculate the final Function Points (FP)	03 CO 8
Q. 3	The following failure intervals (in hours) were recorded for a system: 9, 21, 32, 18, 46, 27, 55, 12, 38, and 42. • Calculate the Mean Time to Failure (MTTF). • Determine the failure rate and the reliability for a mission time of 30 hours.	03 CO 9

Q. 4	A project plans to reuse 100 components, but only 80% can be reused. Remaining components must be developed from scratch. • Average component size = 150 LOC • Cost per LOC = ₹120 • Risk probability = 0.6 Calculate the Risk Exposure	03 CO 9
Q. 5	A project effort is estimated at 150 PM. • AI reduces development effort by 30%. • However: ○ Integration effort increases by 15 PM ○ Debugging effort increases by 20% of the reduced effort ○ Training overhead adds 10 PM Compute the final effort	03 CO 10

All the best !!