VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.:

SLOT: A2

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2025-2026

Programme Name & Branch	: BBS
Course Code and Course Name	: CBS3012 - IT Project Management
Faculty Name(s)	: Divya Meena S & Deepa D
Class Number(s)	: VL2025260502268 & VL2025260502103
Date of Examination	: 27-01-2026
Exam Duration	: 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes

CO1: To understand Project Management activities and to identify basic project management skills with a strong emphasis on issues and problems associated with delivering successful IT projects.

CO2: To develop activity network to use PERT and to manage project risks such as Resource scheduling and cost control.

Q. No	Question	Module	Marks	CO	BL
1.	A company approved a new information system that was technically sound and delivered on schedule. However, after implementation, users resisted adoption, and the system failed to deliver expected business benefits. The project team had focused mainly on software development and infrastructure, with minimal attention to user training and business process changes. Which sphere(s) of the Three-Sphere Model of systems management were inadequately addressed in this project? How could balancing all three spheres have improved project success?	1	10	1	4
2.	A technology firm is developing a real-time traffic monitoring and congestion prediction system for a metropolitan city. The system processes continuous sensor and camera data to analyze traffic density, predict congestion, and suggest routes. It requires high reliability, strict response-time performance, and runs on a distributed platform integrated with existing traffic infrastructure. The estimated software size is **520 KLOC**. i) Calculate the development effort, development time, productivity, and average staff size using the constants (a = 2.4, b = 1.05, c = 2.5, d = 0.38). ii) Calculate the development effort and scheduled time for development using the Intermediate COCOMO model, considering the following project conditions: Use the appropriate effort multipliers from the cost driver table given below.	1	10	2	3

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2025-2026

	• **High software reliability** (Very Low–0.75, Low–0.88, Nominal–1.00, High–1.15, Very High–1.40) • **Product complexity is very high** (Very Low–0.70, Low–0.85, Nominal–1.00, High–1.15, Very High–1.30) • **High Run-time performance constraints** (Nominal–1.00, High–1.11, Very High–1.30) • **Application experience of developers is very high** (Very Low–1.29, Low–1.13, Nominal–1.00, High–0.91, Very High–0.82) • **Programming language experience of developers is very low** (Very Low–1.14, Low–1.07, Nominal–1.00, High–0.95)				
3.	A project involves a sequence of activities required for data centre infrastructure setup. The activities along with their durations (in days) are given below. **Activity (i –j)** | 1–2 | 1–4 | 2–3 | 3–5 | 4–5 | 5–6 | 3–6 **Duration (days)** | 5 | 7 | 4 | 6 | 3 | 5 | 8 i) Identify the critical path activities and determine the project duration. **(2M)** ii) Calculate ES, EF, LS, and LF for all activities. **(4M)** iii) Compute Total Float (TF), Free Float (FF), Independent Float (IF), and Interfering Float (InF). **(4M)**	2	10	2	3
4.	A project for developing and launching an e-commerce platform consists of the following activities. The estimated optimistic (to), most likely (tm), and pessimistic (tp) times for each activity are given in days. **Activity** | **to** | **tm** | **tp** A–B | 1 | 3 | 5 A–C | 2 | 4 | 8 B–D | 3 | 5 | 9 C–D | 4 | 6 | 10 D–E | 2 | 4 | 6 C–E | 5 | 7 | 13 i) Compute the expected time for each activity. **(2M)** ii) Determine the critical path and the expected duration of the project. **(2M)** iii) Calculate the variance and standard deviation associated with the critical path. **(2M)** iv) What is the probability that the project will be completed within 22 days? **(4M)**	2	10	2	3
5.	A software development project is scheduled to be completed in four months. One senior developer is assigned to three parallel modules, each requiring 6–7 hours of work per day. After two weeks, delays begin to appear, even though the schedule shows all tasks as on track. Explain why this situation occurred despite a well-defined schedule. Suggest suitable resource loading or levelling actions to resolve the issue.	3	10	1	4

****