

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 7 – EXAMINATION – SUMMER 2026

Subject Code: 3171609

Date: 03/06/2026

Subject Name: Software Project Management

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Simple and non-programmable scientific calculators are allowed.**

- Q.1**
- (a)** Define Software Project Management. Differentiate between Software Projects and other types of projects. **03**
 - (b)** List and briefly explain the activities covered under Software Project Management. **04**
 - (c)** What is a Project Charter? Explain the key elements of a project charter and discuss the factors that contribute to project success and failure. **07**

- Q.2**
- (a)** What is the primary purpose of a Work Breakdown Structure (WBS) in project planning? **03**
 - (b)** Compare and contrast the Waterfall and Agile software process models. **04**
 - (c)** Explain the COCOMO model for software cost estimation. Calculate the effort and development time for an organic project with an estimated size of 60 KLOC **07**

OR

- Q.2**
- (c)** Discuss the steps involved in selecting an appropriate project approach. What factors influence the choice of a Software Development Life Cycle (SDLC) model? **07**

- Q.3**
- (a)** Define the terms 'Critical Path' and 'Slack Time' in the context of project scheduling. **03**
 - (b)** Draw a Gantt chart for a simple project with at least 5 tasks and explain its utility in project monitoring. **04**
 - (c)** A project has the following activities and time estimates (in days): **07**

Activity	Predecessor	Optimistic (a)	Most Likely(m)	Pessimistic (b)
A	-	2	5	8
B	A	3	6	9
C	A	4	7	10
D	B,C	2	4	6

Calculate the expected time and variance for each activity. Determine the critical path.

OR

- Q.3**
- (a)** What is the purpose of Earned Value Analysis (EVA)? **03**
 - (b)** Explain the three key dimensions of Earned Value Analysis: Planned Value (PV), Earned Value (EV), and Actual Cost (AC) **04**

- (c) A project has a budget of \$100,000 and a schedule of 10 months. After 5 months, the Planned Value (PV) is \$50,000, the Earned Value (EV) is \$40,000, and the Actual Cost (AC) is \$60,000. Calculate Schedule Variance (SV), Cost Variance (CV), Schedule Performance Index (SPI), and Cost Performance Index (CPI). Interpret the results. **07**

- Q.4** (a) Define 'Risk' in the context of software project management. **03**
(b) List and explain the various risk categories as per the software project management perspective. **04**
(c) Explain the Risk Management process. Discuss any two potential risk treatment strategies with suitable examples. **07**

OR

- Q.4** (a) What is a 'baseline' in Software Configuration Management (SCM)? **03**
(b) Explain the importance of Version Control and Change Control in SCM. **04**
(c) Describe the SCM process with a neat diagram. What are the goals of effective Software Configuration Management? **07**

- Q.5** (a) What is the difference between Software Quality Assurance (SQA) and Software Quality Control (SQC)? **03**
(b) Briefly explain the key components of the Capability Maturity Model (CMM). **04**
(c) What is Software Re-engineering? Explain the Software Re-engineering Process Model. Discuss the technical problems associated with re-engineering. **07**

OR

- Q.5** (a) Why is Project Closure an important phase in the project management life cycle? **03**
(b) What are the key components typically included in a Project Closure Analysis Report? **04**
(c) "Business Process Re-engineering (BPR) often drives Software Re-engineering." Justify this statement with a suitable example. Discuss the challenges in implementing BPR. **07**
