National University of Computer and Emerging Sciences
Lahore Campus

Fundamentals of Software Project Management (SE4002)

Name: Hasam Yahya

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Attempt all the questions on space provided on paper.
Single sided, A4 sized, hand written cheat sheet is allowed.

22L-7971 Roll No
BSE-7B Section
Date: Nov 5th 2025

Course Instructor(s)
Javeria Sadiq (BSE-7C)
Momna Zaneb (BSE-7A,BSE-7B)

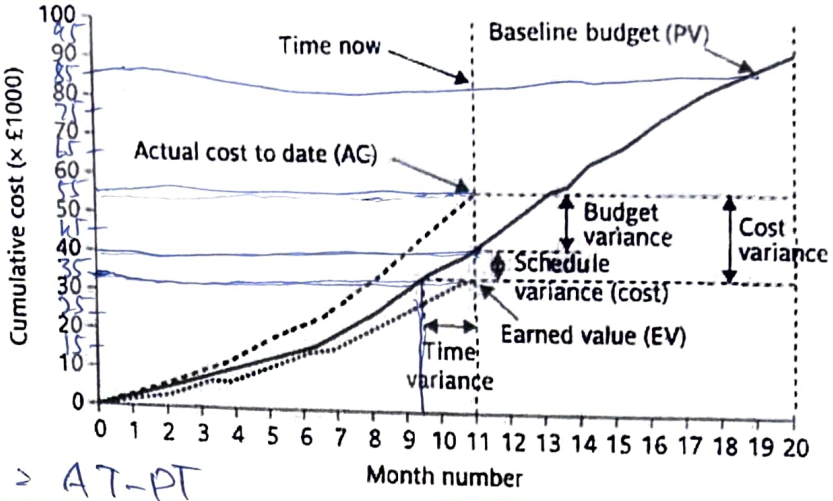
Sessional-II Exam

Total Time (Hrs):	**1**
Total Marks:	**30**
Total Questions:	**2**

CLO 2: Apply approaches to manage and optimize the software development processes

Q1:Using Earned Value Management System , interpret the status of the project. (10 Marks)

The "SmartBank Online Portal" project was initiated by TechNova Solutions to digitize a client's banking services over a 12-month period. The project team of 8 members (including 2 analysts, 3 developers, 2 testers, and 1 project manager) has now reached the 11th month of execution. The Project Manager reviews the Earned Value Chart provided above, showing the cumulative cost trends of Planned Value (BCWS), Earned Value (BCWP), and Actual Cost (ACWP). Carefully visualize/read the chart at Month 11 and answer the following questions:



TV = AT - PT
= 11 - 9.5 = 1.5

CV = 35 - 55 = -20, ie over budget

(a) Compute the Cost Performance Index. ***(3 marks)***

CPI = EV / AC, here EV = 35 and AC is 55.

So, CPI = 35 / 55

= 0.6363 — Ans

(b) Compute the Schedule Performance Index. ***(3 marks)***

PV is 40 at 11th month.

SV = EV - PV

= 35 - 40

= -5 — Ans.

SPI = $\frac{9.5}{11} = 0.86$

(c) State whether the project is within budget or over budget and justify briefly. ***(2 marks)***

Since CPI < 1, thus the project is cost inefficient, ie over budget (spending more than planned). Ans

(d) State whether the project is on schedule or behind schedule and justify briefly. ***(2 marks)***

AS SV < 0, project is behind schedule (ie taking more time than planned)

AS SPI < 1, project is ~~above~~ behind schedule (taking more time than planned)

CLO 2: Apply approaches to manage and optimize the software development processes.

Q2:Apply the critical path method (cpm) to determine , The minimum project duration of FASTMed. **(20 Marks)**

Marks Distribution: Task network(5), Critical tasks(5), Minimum project duration(3), Lag(5), Critical path(2)

The following table provides details of all the tasks required to complete the project FASTMed — a web application designed for managing digital patient appointments and medical records for a regional hospital network. Each task includes its estimated duration (in weeks) and its pre-requisite task(s).

20

AKA lag

Tasks	Duration	Pre-requisite	Slack
T1	5	T4	4
T2	9	T5	4
T3	5	T6	0
T4	7	T5	4
T5	2	—	0
T6	10	T14	0
T7	3	T8	3
T8	7	T1, T6, T13	3
T9	4	T12, T7, T11	0
T10	4	T1	4
T11	8	T3	0
T12	9	T10	4
T13	6	T2	4
T14	6	T5	0

Show all working clearly. No credit will be given if the working steps are not shown. Important Note: There is no partial credit in this question, and there are no marks for errors carried forward. Check your answers carefully before submission.

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