United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Exam Name: Final Term Exam Trimester: Spring 2025
Course Code: PMG 4101, Course Title: Project Management
Total Marks: **40** Duration: 2 hours

Any examinee found adopting unfair means will be expelled from the trimester / program as per UIU disciplinary rules.

Answer all the questions.

Consider the following Scenario:

Bangladesh government have decided to improve international trade. For this reason, Bangladesh government have decided to digitalize the import-export systems. This decreases the wait time and complexity of these processes and bring much need transparency.

Your organization was assigned to build the new digital system. Your organization have built some management systems previously with 10 experienced team members. Now as responsibility of this massive project your organization decided to expand the team with 15 new freshers. With the new team, you have analyzed the requirements and build a feature list. Your will need to build a web-app for the exporter and importer to create their accounts and manage profile. A portal needs to be built to apply for permit for importing certain products. Another portal will be needed for the government officials to verify and acquire information of the relevant party to approve the permit. A system will be developed to track the progress of the application. A payment gateway is proposed to increase the speed of the process and transparency. User should be able to track their import/export orders through this system. A system will be required to keep track of export and import arriving and leaving in the customs office. A database will be needed to maintain these features. A review system is needed to be built to get a clear view of how some products are performing in export/import.

After reviewing these features, government asked you to add "SWISS" to payment system for quick international fund transfer. These will make it easier to do transactions globally and government to trace them to ensure to no illegal activity is taking place. Also dash board for currency exchange rate is required.

You and you have found that all the user interface features [input & output handling] are relatively simple to build but handling the internal and external data files and query are very complex to build. All the technical complexity factors from F1 to F7 are significant; F8 and F9 are essential, F12 and F14 are moderate and the remaining technical complexity factors are average. The average line of code required per function point is 128.

1. Consider the above scenario, calculate the CT (count total)/TDI (total degree of influence) and Value Adjustment Factor (VAF)/Complexity for this project. Calculate FP (Function point) of this project using the above VAF. **[CO3] 4+2+2 = 8**

2. Determine the project complexity according to COCOMO model. Find all the COCOMO estimating parameters including tentative budget for the project mentioned in the above scenario [show calculations]. **[CO3]** 1+**4 = 5**

3. Define the concept and purpose of Change Control. Discuss the steps (basic course of events) and alternate steps you should follow for integrating the changes for the above project. **[CO4] 2+5 = 7**

4. Develop a Gantt-chart for the above project scenario by identifying the tasks and tasks' dependency. Mention different assumptions or consideration need to be considered (e.g., weekly holidays and government holidays) for making a pragmatic estimation. **[CO5] 2+3 = 5**

5. Which Review method will be appropriate for reviewing the project above, mention the justification. Describe the activities of the review process. **[CO2] 2+3 = 5**

6. What do you understand by KPAs. As a project manager if you want to achieve the Level-III CMMI Maturity-Level, what are the compliance/ rubrics/guideline you need to follow during a software project development? **[CO4] 1+4 = 5**

7. Group wise final research report submission and presentation on a contemporary research topic related to software Project Management. The research work must cover problem statement, research objectives, comprehensive literature review, existing methodologies analysis, proposed methodology for solving the problem or research, experimental results and discussions, conclusion and future directions, and references. (**Do not answer this question, already completed in classroom**). **[CO5] 5**

Parameter	**Simple**	**Avg**	**Complex**
EI	3	4	6
EO	4	5	7
EQ	3	4	6
ILF	7	10	15
EIF	5	7	10

Project Type	**a**	**b**	**c**	**d**
Organic	2.4	1.05	2.5	0.38
Semidetached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.30