

**THE OPEN UNIVERSITY OF SRI LANKA**

Faculty of Engineering Technology  
Department of Electrical & Computer Engineering  
Bachelor of Software Engineering

**FINAL EXAMINATION – (2012/2013)****ECI6260 – Software Project Management****CLOSED BOOK EXAM**

Time Allowed: 3 hours

Date: 11<sup>th</sup> August 2013

Time: 0930 – 1230 hours

**INSTRUCTIONS TO CANDIDATES**

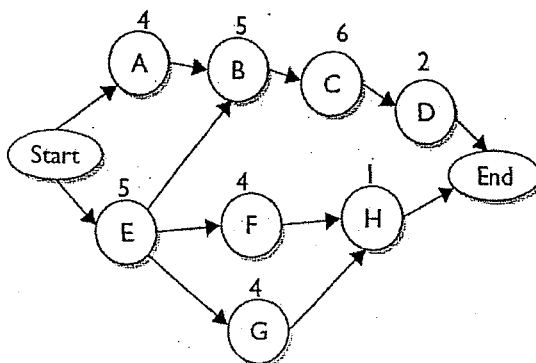
1. This question paper contains ten questions in **PART A** and five questions in **PART B** on 6 pages.
2. Answer **ALL** questions in **PART A** and use attached MCQ answer sheet.
3. Attach this MCQ answer sheet with your *PART B* answer scripts.
4. Answer **any FOUR** questions from **PART B**.
5. Clearly state all your assumptions (if any).

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**PART A:****Answer ALL questions**

1. Which of the following BEST describes the main purpose of the project charter?
  - a. It is an authorization for the project manager to work on the project
  - b. It identifies the sponsor and describes his or her role on the project
  - c. It contains a list of all activities to be performed
  - d. It describes the initial scope of the work
  
2. Which of the following is NOT a characteristic of the Project Management Plan?
  - a. Collection of subsidiary plans
  - b. Formal, written communication
  - c. A bar chart that shows the order of tasks and their resource assignments
  - d. Must be approved by project sponsor
  
3. Which of the following subsidiary plans would provide the details of the steps a project manager has taken to improve customer satisfaction?
  - a. Quality management plan
  - b. Communications management plan
  - c. Staffing management plan
  - d. Risk management plan
  
4. A bar chart shows the number and type of resources you need throughout your project is called a \_\_\_\_\_.
  - a. Organizational Chart
  - b. Resource Schedule
  - c. Resource Histogram
  - d. Staffing Timetable
  
5. Which of the following best describes the risk management tool used when a facilitator is used to gather opinions from experts anonymously?
  - a. Brainstorming
  - b. Delphi Technique
  - c. Interviews
  - d. SWOT Analysis
  
6. What is the BEST action that a project manager newly assigned to manage a new project in a company should first take?
  - a. Create the work breakdown structure
  - b. Develop the project management plan
  - c. Start working on the project charter
  - d. Figure out who has a stake in the project

7. You are the project manager for a project with the following network diagram. Studying the diagram, which path is the critical path?



- a. ABCD  
 b. EBCD  
 c. EFH  
 d. EGH
8. You are managing a software engineering project, when two team members come to you with a conflict. The lead developer has identified an important project risk: you have a subcontractor that may not deliver on time. Another developer doesn't believe that the risk is likely to happen; however, you consult the lessons learned from previous projects and discover that subcontractors failed to deliver their work on two previous projects. You decide that the risk is too big; you terminate the contract with the subcontractor, and instead hire additional developers to build the component. Both team members agree that this has eliminated the risk. Which of the following BEST describes this scenario?
- a. Transference  
 b. Mitigation  
 c. Avoidance  
 d. Acceptance
9. There have been several rounds of layoffs at your company. Now your project team is worried about their job security, and you've noticed that their performance has decreased significantly because of it. This is predicted by which motivational theory?
- a. McGregor's Theory of X and Y  
 b. Maslow's Hierarchy of Needs  
 c. McClelland's Achievement Theory  
 d. Herzberg's Motivation-Hygiene Theory
10. Which is NOT an input to the Create WBS process?
- a. Project Scope Statement  
 b. Organizational Process Assets  
 c. Requirements Documentation  
 d. WBS Dictionary

**PART B:**

Answer any FOUR questions

**Question 1**

(a) Compare and contrast software project management with the management of other types of projects, for e.g. construction projects. [4 Marks]

(b) The famous 'Triple Constraint' (also often referred to as the Project Management Triangle) is a diagram depicting the key attributes that must be handled effectively for successful completion and closure of any project.

List the relevant attributes and briefly discuss what is meant by this statement.

[6 Marks]

(c) There are different schools of thought with respect to software development methodology most appropriate for developing software systems. Some argue that traditional software development methodologies are the most suitable because of the maturity of these models. Others argue that new approaches based on agile development models are urgently needed to improve quality of software products.

Identify different software development methodologies and briefly describe each. Discuss, in your own terms, which methodology (traditional or agile) is the most suitable for modern software development. Include appropriate examples and justification for your arguments. You may use actual software development project that you are familiar with to justify your answer. [10 Marks]

**Question 2**

(a) Explain a methodology that uses monetary attributes to quantify the progress of a project. [4 Marks]

(b) Assume you are the project manager of a software development project that consists of 16 modules of equal complexity. Assume that the work is uniformly distributed over 12 weeks. The total approved budget for this project is Rs. 600,000. At the end of first four weeks of work, Rs. 125,000 has been spent, and four modules have been completed.

Calculate the following values, showing all your workings.

(i) The budgeted cost of work performed (BCWP) for the project as a whole.

(ii) Actual cost of work performed (ACWP)

(iii) Cost performance index (CPI) or burn rate

(iv) Estimate of the final project cost at completion (EAC)?

[4 x 4 = 16 Marks]

**Question 3**

- (a) What is a version control system? Why is it important to decide on a version control system before actual development work in a software project commences? [6 Marks]
- (b) Describe either the main features that are available in a Version Control System that you are familiar with or a wish list of features that should be available on a Version Control System. [8 Marks]
- (c) What is a release management system? Briefly describe the different activities involved in a release management system. [6 Marks]

**Question 4**

- (a) Explain the use of a Work Breakdown Structure in managing a software project. [4 Marks]
- (b) What are the main components of a Work Break Down Structures. [4 Marks]
- (c) Draw a simple work breakdown structure for organizing an academic conference at the Faculty of Engineering Technology (FET). The objective of the conference is to allow the students to present their work to a wider audience. [12 Marks]

**Question 5**

- (a) One of the major roles of a Project Manager is to keep the teams motivated. Over the years many different motivational theories have been presented. Identify 4 different theories of motivation and describe the fundamental concept behind each theory. Write a critique of each theory in terms of the value or lack of value in applying it to the management of a project team. [6 Marks]
- (b) Conflicts often arise in project teams. These conflicts have almost always have an adverse effect on the project progress. One of the important roles of a project manager is to solve conflicts that occur within project teams before they can have an impact on the project.

Assume that you are working for a large company that implements a large number of projects concurrently. Each project is managed by a project manager. The board of directors have noticed that each project manager deals with conflicts on his own way. Some of these conflicts have caused considerable loses to the company because they have lead to the failure of some important projects. The Board of Directors have decided to formulate a company wide "Conflict Resolution Policy".

Your task is to prepare a list of main points that should be included in a company-wide "Conflict Resolution Policy". These points will be discussed at the next board of meeting and will be used as the base for preparing a company-wide policy that will be followed by all project managers. [14 Marks]

**Question 6**

- (a) Compare and contrast the project evaluation and review technique (PERT) with the critical path method (CPM). [4 Marks]

Using the information in Table 1, assuming that the project team will work a standard working week (5 working days in 1 week) and that all tasks will start as soon as possible:

Task	Description	Duration (Working Days)	Predecessor/s
A	Requirement Analysis	5	
B	Systems Design	15	A
C	Programming	25	B
D	telecoms	15	B
E	Hardware Installation	30	B
F	Integration	10	C, D
G	System Testing	10	E, F
H	Training/Support	5	G
I	Handover and Go-Live	5	H

- (b) Draw a network diagram to represent the above information. [6 Marks]
- (c) Determine the critical path of the project [4 Marks]
- (d) Calculate the planned duration of the project in weeks [2 Marks]
- (e) Identify any non-critical tasks and the float (free slack) on each. [4 Marks]

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