

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering



Study Programme : Bachelor of Software Engineering
Name of the Examination : Final Examination
Course Code and Title : ~~EE~~X6560 / ~~EC~~X6260 Software Project Management
Ademic Year : 2017/18
Date : 13 February 2019
Time : 09:30 – 12:30
Duration : 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
 2. This question paper consists of **Seven (7)** pages.
 3. This question paper consists of three (3) parts.
 4. Part A of this question paper contains ten (10) MCQs. Answer all questions. Each correct answer will receive 2 marks. There will be no negative marks for the incorrect answers. All your answers to the MCQs must be marked on the answer sheet provided. Attach the MCQ answer sheet with the answer scripts of Part B and Part C. [10 x 2 Marks]
 5. Part B contains a case study. Answer all questions. [40 Marks]
 6. Part C contains four (4) questions. Answer any two (2) questions. [2 x 20 Marks]. Answer for each question should commence from a new page.
 7. Relevant charts/ codes are provided.
 8. This is a Closed Book Test (CBT).
 9. Answers should be in clear hand writing.
 10. Do not use Red colour pen.
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Part A - Multiple Choice Questions. Answer all questions.**[10 x 2 Marks]**

- 1 What is not an example for a project?
 1. Writing the Final Year Report
 2. Setting up a new sales office
 3. Bulk manufacturing of Apple iPhones
 4. Improving the battery life of the iPhone

- 2 As there is a high demand for resources with the limited availability, you had to adjust the start and end dates of the project to balance the demand for resources. What is the technique you followed?
 1. Resource Smoothing
 2. Resource leveling
 3. Crashing
 4. Fast tracking

- 3 Which process is not a part of the Project Life Cycle?
 1. Negotiation
 2. Planning
 3. Execution
 4. Closure

- 4 Which process is not done during the Planning stage of a project?
 1. Collect Requirements
 2. Define Scope
 3. Identify Risks
 4. Identify Stakeholders

- 5 You were asked to create a document which formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities. Which document are you creating here?
 1. Project Passport
 2. Project Plan
 3. Project Statement of Work
 4. Project Charter

- 6 A formally chartered group responsible for reviewing, evaluating, approving, delaying, or rejecting changes to the project is called
1. Change Management Board
 2. Change Control Board
 3. Project Monitoring Council
 4. Board of Directors
- 7 You are reviewing quality assurance test cases of the module which you are about to start the test execution. You want to find out what are the corresponding requirements and designs for those test cases. What should you refer?
1. Work Breakdown Structure
 2. Requirements Traceability Matrix
 3. Project Scope Statement
 4. Project Statement of Work
- 8 "The awards ceremony (successor) cannot start until the race (predecessor) has finished.". What is the logical relationship between these 2 activities?
1. Finish-to-Start
 2. Finish-to-Finish
 3. Start-to-Start
 4. Start-to-Finish
- 9 The process of developing options and actions to enhance opportunities and to reduce threats to project objectives is called
1. Plan Risk Management
 2. Identify Risks
 3. Plan Risk Responses
 4. Reserve Analysis
- 10 A project manager is about to start the planning process of a software development project. The project sponsor would like to review any project risks that have been identified at this point. Which document should the project manager recommend the sponsor to review?
1. Project charter
 2. Issue log
 3. Risk register
 4. Risk report

Part B - Answer all questions.

Following are excerpts of a news article from Sunday Observer (November 26, 2017) on a proposed government project on **Digitization of Sri Lankan Hospitals**:

Sri Lanka is on the brink of a revolution in health care. The Health Minister's recent announcement of creating 300 digitalized state hospitals has been welcomed as filling a need for faster analysis, diagnosis and management of patients.

The digital infrastructure has already been set up as far back as 2009, with the adoption of Electronic Medical Records (EMR). Besides automating manual tasks that impede patient safety and care, digital health care paves the way for delivering the highest quality care to most persons at the lowest cost.

Connected health, also known as Technology-Enabled Care (TEC), involves the convergence of health technology, digital media and mobile devices. It enables patients, health care workers and Health Care professionals (HCPs) to access data and information more easily and improve the quality and outcomes of both, health and social care.

Digital health care environment can improve the efficiency and quality of care in 7 ways.

1. Better Storage Capabilities of healthcare records
2. Better communication among staff
3. Security & Privacy of health information
4. Increased Efficiency
5. Patient Access to Information
6. Reach Out Through the Web
7. Reduce the Costs

The prototype solution is designed and developed with the aid of various stakeholders according to principles of human-computer interaction, and/or activity-centered designs.

The technological solution is pilot-tested in patient and user groups to ensure its effectiveness, safety and affordability. Impact evaluations are then carried out in large-scale clinical studies and/or trials, and the evidence is synthesized through published literature. This may also include clinical studies that evaluate the economic impact.

New system will give the much-needed connectivity to the people living in the most remote parts of the country. To go with it, should implement a cloud-based Central Personal Health Record System for the entire population, managed by the

government. In this system, the personal health record of every individual should be owned and controlled by that individual via mobile Internet access using smart phones. The individual could give access to any health care organization.

With the right technology insight, medical device developers can provide the health care system with cheaper, faster, and more effective treatments.

Once processes are well understood, technology solutions can be streamlined and integrated. Essential to this integration is implementation of Information and Communications Technology (ICT) that interconnects all aspects of care delivery and hospital administration. If properly integrated and automated, these processes have the potential to unite patients, doctors, staff, assets and information throughout the hospital.

For transformation to succeed, hospitals will need to adopt both technology and process improvement strategies to enable secure access, exchange and analysis of patient information and to create greater efficiencies in clinical processes.

These strategies will give rise to a more patient-centric care model through better monitoring and management of wellness and chronic disease and enable cost containment while improving overall health care delivery system.

(Source: <http://www.sundayobserver.lk/2017/11/26/health/over-300-hospitals-be-digitalized-2019-digital-technology-gives-health-care-shot>)

- (a). List the following information needed to create the Project Charter.
- i. Project purpose or justification [5 marks]
 - ii. High-level requirements [5 marks]
 - iii. Summary milestone schedule [5 marks]
 - iv. Summary budget [5 marks]
 - v. Project approval requirements (how to define project success, who decides its' success and who signs off on the project) [5 marks]
- (b). Identify five (5) main stakeholders of this project including at least one (1) negatively affected stakeholder. [5 marks]

- (c). For the stakeholders identified in (b), compare their 'level of authority' and 'level of concern' by placing them in Power / Interest Grid.

[5 marks]

- (d). Place the above identified stakeholders in (b) in the 'Stakeholders Engagement Assessment Matrix' showing their Current and Desired Engagement.

[5 marks]

Part C - Answer any 2 questions.

- 1 Based on the case study given in Part B about the Digitization of Sri Lankan Hospitals, prepare the Risk Register with five (5) major risks which include four (4) negative risks and one (1) positive risk. The Risk Register should include the following columns:

- i. Risk
- ii. Owner
- iii. Reason / Cause
- iv. Effect
- v. Probability as a percentage
- vi. Impact in measurable terms
- vii. Level of Risk as Low, Medium or High
- viii. Type of Risk Response Strategy (Avoid, Mitigate etc.)
- ix. Risk Response

[20 marks]

- 2 You are given the responsibility of collecting detailed requirements for the Digitization of Sri Lankan Hospitals projects which is described in Part B. List five (5) most useful tools or techniques which you plan to use for this and explain in detail how they can be used in this project.

[5 x 4 marks]

- 3 Choose **any four (4)** from the given list below and discuss the difference of the given terms.
- Primary Risk vs Secondary Risk
 - Push Communication vs Pull Communication
 - Project Statement of Work vs Project Charter
 - Mitigating a risk vs Contingency planning
 - Self-organizing team vs Conventional project team
 - Leading vs Managing a project

[4 x 5 Marks]

- 4 A research was done on Cost of Quality (COQ) for 4 similar products made by 4 software development companies. Following table shows the Cost of Quality and Sales Revenue in USD for companies A, B, C and D.

“Quality Sales Index” is calculated as a percentage of the Total Cost of Quality from Sales Revenue.

	Company			
	A	B	C	D
Prevention Cost	27,000 (3%)	28,500 (3%)	74,600 (12%)	112,300 (21%)
Appraisal Cost	155,000 (19%)	170,300 (20%)	113,400 (18%)	107,000 (20%)
Internal Failure Cost	38,6400 (48%)	469,200 (55%)	347,800 (54%)	219,100 (40%)
External Failure Cost	24,2000 (30%)	192,000 (22%)	103,500 (16%)	106,000 (19%)
Total COQ	810,400	860,000	639,300	544,400
Sales Revenue	4,360,000	4,450,000	5,050,000	5,190,000
Quality Sales Index	18.59%	19.33%	12.66%	10.49%

(a) Using at least two (2) examples from Software Development, explain the following terms.

- Prevention Cost
- Appraisal Cost
- Internal failure cost
- External failure cost

[12 marks]

(b) By inspecting the cost of quality and the sales revenue of Company A and D;

- i. Explain what could have been the strategy of company D that resulted in an increase of the sales revenue?

[3 marks]

- ii. How do you think they have implemented the strategy identified in part (i)? Explain your answer with examples of actions taken by company D.

[3 marks]

- iii. Should they continue the same strategy identified in part (i), or should they try a different strategy? If they are to continue the same strategy, what do they need to concentrate on?

[2 marks]

END OF PAPER

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Final Examination – (2018)
EEI6560 Software Project Management

Answer Sheet for Part A

Index Number

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INSTRUCTIONS TO CANDIDATES

1. Attach this sheet to the answer script for Part B of this paper.
2. Fill in the box corresponding to the number of the correct answer.
3. Shade ONE box only for each question. For example, for question 1, if you think “2” is the correct answer, fill in your answer sheet like this:

1	1	2	3	4
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Answers:

1	1	2	3	4
2	1	2	3	4
3	1	2	3	4
4	1	2	3	4
5	1	2	3	4
6	1	2	3	4
7	1	2	3	4
8	1	2	3	4
9	1	2	3	4
10	1	2	3	4

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