



The University of Fiji

SCHOOL OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE / INFORMATION TECHNOLOGY

FINAL EXAMINATION SEMESTER 2, 2015

Systems Project and Quality Management

ITC208

Time Allowed: Three hours (3 hours)

(An extra ten minutes is allowed for reading this paper)

INSTRUCTIONS

- 1.0 Write **all** your answers in the **Answer Book** provided.
- 2.0 There are eight (8) pages of questions in this Question Booklet (excluding the Cover Page)
- 3.0 Write your **Student Identification Number** on the front page of the **Answer Book**.
- 4.0 If you use extra sheets of paper, be sure to show clearly the question number(s) being answered and to tie each sheet securely in your Answer Book at the appropriate place.
- 5.0 There are **two** sections in this paper, **Section A** consists of 20 multiple choice and is worth 20 marks, **Section B** consists of open ended questions and is worth 80 marks.
Answer all the questions.
- 6.0 **Programmable calculators** are not allowed.

Section A.
Multiple Choice Questions

[20 marks]

1. ____ is not an attribute of a project.
 - A. Project are unique
 - B. Projects are developed using progressive elaboration
 - C. Projects have a customer
 - D. Projects involve little uncertainty
2. A ____ is a series of actions directed towards a particular result.
 - A. Goal
 - B. Process
 - C. Plan
 - D. Project
3. Several application development projects done for the same functional group might best be managed as part of a ____.
 - A. Portfolio
 - B. Program
 - C. Investment
 - D. Collaborative
4. ____ is not part of the three-sphere model for systems management.
 - A. Business
 - B. Information
 - C. Technology
 - D. Organization
5. Personnel in a ____ organizational structure often report to two or more bosses.
 - A. Functional
 - B. Project
 - C. Matrix
 - D. Hybrid
6. Project work is most successful in an organizational culture where all of the following characteristics are high except ____.
 - A. Member identity
 - B. Group emphasis
 - C. Risk tolerance
 - D. Control

7. A ____ is a product or service, such as a technical report, a training session, or hardware, produced or provided as part of a project.
- A. Deliverable
 - B. Product
 - C. Work package
 - D. Tangible goal
8. ____ process group normally requires the most resources and time
- A. Initiating
 - B. Planning
 - C. Executing
 - D. Monitoring and Control
9. The nature of Information Technology projects is different from projects in many other industries because they are very ____.
- A. Expensive
 - B. Technical
 - C. Diverse
 - D. Challenging
10. The ____ report provides a weekly summary of task costs.
- A. Task Costs
 - B. Summary Costs
 - C. Cash Flow
 - D. Task Usage
11. In the network diagram view, the critical tasks are displayed within a ____ border.
- A. Blue
 - B. Black
 - C. Silver
 - D. Red
12. ____ is often completed before initiating a project.
- A. Stakeholder register
 - B. Business case
 - C. Project charter
 - D. Kick-off meeting

13. A work breakdown structure, project schedule, and cost estimates are outputs of the ____ process.
- A. Initiating
 - B. Planning
 - C. Executing
 - D. Monitoring and controlling
14. The last step in the four-stage planning process for selecting information technology projects is ____.
- A. Information technology strategy planning
 - B. Business area analysis
 - C. Mind mapping
 - D. Resource allocation
15. You cannot start editing a technical report until someone else completes the first draft. It is a ____ type of dependency.
- A. Finish-to-start
 - B. Start-to-start
 - C. Finish-to-finish
 - D. Start-to-finish
16. Obtaining quotes, bids, offers, or proposals is part of ____ project procurement management process.
- A. Plan procurements
 - B. Conduct procurements
 - C. Administer procurements
 - D. Close procurements
17. Ana is preparing a cost estimate for a building based on its location, purpose, number of square feet, and other characteristics, she must be using ____ cost estimating technique.
- A. Parametric
 - B. Analogous
 - C. Bottom-up
 - D. Top-down

18. _____ is a network diagramming technique used to predict total project duration.

- A. PERT
- B. A Gantt chart
- C. Critical path method
- D. Crashing

19. _____ causes people to participate in an activity for own pleasure.

- A. Intrinsic motivation
- B. Extrinsic motivation
- C. Self motivation
- D. Social motivation

20. _____ generates ideas for quality improvements by comparing specific project practices or product characteristics to those of other projects or products within or outside the performing organization.

- A. Quality Audits
- B. Design of Experiments
- C. Six Sigma
- D. Benchmarking

Open Ended Questions

[80 marks]

Question 1

[10 marks]

- A. Explain 3 things which the project managers need to keep in mind during the current stint of quality management. **[3 marks]**
- B. Explain the 5 cost categories related to quality. **[2 marks]**
- C. Give 2 reasons; why testing does not sufficiently prevent software defects. **[2 marks]**
- D. Explain the design of experiments technique in project quality management. **[1 mark]**
- E. Differentiate between positive and negative risk with an example each. **[2 marks]**

Question 2

[20 marks]

- A. Elaborate on the project procurement management processes. Each process should be explained in detail. [4 marks]
- B. Explain, what qualitative risk analysis is and discuss the 3 tools and techniques used to do qualitative risk analysis. [4 marks]
- C. Project 2007 uses an underlying relational database to filter, sort, store, and display information. Explain filtering with an example. [1 marks]
- D. In performing quantitative risk analysis, one of the techniques used is decision tree analysis. Explain this analysis with an example. [2 marks]
- E. Explain the 4 main response strategies for negative risk. [2 marks]
- F. How are the proactive organizations addressing workforce needs? [1 mark]
- G. Describe what "scope creep" is and discuss four ways this can it be avoided? [2.5 marks]
- H. Empathic listening, rapport and mirroring are all related terms, and are used in project human resource management. Define the terms and elaborate how they are related. [3.5 marks]

Question 3

[25 marks]

- A. List five reasons why organizations outsource. Why is there a growing trend in outsourcing, especially in offshore? [4 marks]
- B. What is a project, and what are its main attributes? How is a project different from what most people do in their day-to-day jobs? What is the triple constraint? [4 marks]
- C. What does it mean to take a systems view of a project? How does taking a systems view of a project apply to project management? [2 marks]
- D. Explain the four frames of organizations. How can they help project managers understand the organizational context for their projects? [4 marks]
- E. Briefly explain the differences between functional, matrix, and project organizations. Describe how each structure affects the management of the project. [3 marks]
- F. Describe how organizational culture is related to project management. What type of culture promotes a strong project environment? [2 marks]

- G. Discuss the importance of top management commitment and the development of standards for successful project management. Provide examples to illustrate the importance of these items based on any type of project. **[2 marks]**
- H. What are the phases in a traditional project life cycle? How does a project life cycle differ from a product life cycle? Why does a project manager need to understand both? **[3 marks]**
- I. What is the main technique used for verifying scope? Give an example of scope verification on a project. **[1 mark]**

Question 4 **[25 marks]**

- A. There are tools and techniques used by project team for cost estimation. Explain the three basic types of tools and techniques which are used. **[1.5 marks]**
- B. Discuss the use of a stakeholder register and a stakeholder management strategy to assist in managing stakeholders. **[2 marks]**
- C. What is involved in project scope management, and why is good project scope management so important on information technology projects? **[2 marks]**
- D. It is very important for the project managers to know the types of cost estimates. Explain the types of cost estimates and explain how accurate each one of these estimates are. **[1.5 marks]**
- E. List and explain the three types of dependencies with examples. **[1.5 marks]**
- F. Discuss the difference between resource loading and resource leveling and provide an example of when you would use each technique. **[1 mark]**
- G. Perform a financial analysis for a project using the format discussed during lectures. Assume the projected costs and benefits for this project are spread over 4 years which starts at year 0, as follows: Estimated costs are \$225,700 in year 1, \$36,000 in year 2 and 29,000 each year in years 3 and 4. Estimated benefits are \$0 in year 1 and \$200,000 each year in years 2, 3 and 4. Use a 8.5% percent discount rate, and round the discount factors to two decimal places. Calculate and clearly display the NPV, ROI, and year in which payback occurs. In addition, write a paragraph explaining whether you would recommend investing in this project, based on your financial analysis. **[4.5 marks]**
- H. Create a weighted scoring model to determine grades for a course. Final grades are based on three exams worth 20%, 15%, and 25%, respectively; homework is worth 15%; and a group project is worth 25%. Enter scores for three students. Assume Student 1 earns 100% (or 100) on every item. Assume Student 2 earns 70% on each of the exams, 80% on the homework, and 95% on the group project. Assume Student 3 earns 90% on

Exam 1, 80% on Exam 2, 75% on Exam 3, 80% on the homework, and 70% on the group project. **[2 marks]**

- I. Given the following information for a one-year project, answer the following questions.

PV = \$23 000
 EV = \$20 000
 AC = \$25 000
 BAC = \$120 000

- What is the cost variance, schedule variance, cost performance index and schedule performance index for the project? **[2 marks]**
- How is the project doing? Is it ahead of schedule or behind schedule? Is it under budget or over budget? **[0.5 mark]**
- Use the CPI to calculate the estimate at completion for this project. Is the project performing or worse than planned? **[1 mark]**
- Use the SPI to estimate how long it will take to finish this project. **[0.5 mark]**

- J. Consider the table below, Network Diagram Data for a large project. All estimated times are in weeks; and the network proceeds from node 1 to node 8.

Activity	Initial Node	Final Node	Estimated Duration
A	1	2	10
B	1	3	12
C	1	4	8
D	2	3	4
E	2	5	8
F	3	4	6
G	4	5	4
H	4	6	8
I	5	6	6
J	5	8	12
K	6	7	8
L	7	8	10

- Draw an AOA network Diagram representing the project. Put the node numbers in circles and draw arrows from node to node, labelling each arrow with the activity letter and estimated time. **[2 marks]**
- Identify all of the paths on the network diagram and note how long they are. **[2 marks]**

- iii. What is the critical path for this project and how long is it? [0.5 mark]
- iv. What is the shortest possible time it will take to complete this project? [0.5 mark]

----- End of Exam -----

