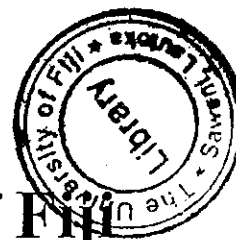




The University of Fiji



Department of Computer Science & Information Technology
Semester 2 Year 2016

FINAL EXAMINATION PAPER

ITC208: System Project and Quality Management

Important Instructions to Students:

1. Read the questions, instructions carefully and answer the questions.
2. You are allowed an **extra 10 minutes reading time** (during this time, you are not allowed to write with pen) and **180 minutes (3 Hours) to complete this paper**.
3. Silent, non-programmable calculators are allowed, but not supplied.
4. Write all your answers in the answer booklet provided. If you need extra sheets, please ask from the supervisor. Write your name, course code and student identification number in the answer booklet and in the attendance sheet.
5. **This Final Course Examination Paper is worth 100 marks contributes 50% of the total course assessments.**
6. This paper contains four (4) sections A, B, C and D. All questions are compulsory to answer **except** section D has choices.
7. Write all your answers legibly. The marker has the right to award zero for answers that are not legible.
8. This is a **Closed Book Examination**. The University views plagiarism, cheating and dishonest practice as serious offences and if found, offenders are penalized.

Examination Paper Content (Format):

<u>Section</u>	<u>Question</u>	<u>Content</u>	<u>Marks</u>	<u>Suggested Time</u>
A	1-20	Multiple choice	20	30 minutes
B	1-15	Quick quiz	15	35 minutes
C	1-20	Short Answers Questions	40	55 minutes
D	1-7	Case study (Choose any five out of seven)	25	60 minutes
		TOTAL	100	180 Minutes

Section A: Multiple Choices
(20 Marks)

Each question is worth 1 mark. All questions are compulsory.

1. 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
2. Which of the following is not true?
 - a. Most American companies have a project management office.
 - b. You can earn an advanced degree in project management from hundreds of colleges and universities.
 - c. Employers are looking for project management skills in new graduates.
 - d. Project management certification does not affect pay.
3. What is the name of one of the popular certifications provided by the Project Management Institute?
 - a. Certified Project Manager (CPM)
 - b. Project Management Professional (PMP)
 - c. Project Management Expert (PME)
 - d. Project Management Mentor (PMM)
4. Which of the following is not part of the three-sphere model for systems management?
 - a. business
 - b. information
 - c. technology
 - d. organization
5. Which of the four frames of organizations addresses how meetings are run, employee dress codes, and expected work hours?
 - a. structural
 - b. human resources
 - c. political
 - d. symbolic
6. Personnel in a _____ organizational structure often report to two or more bosses.
 - a. functional
 - b. project
 - c. matrix
 - d. hybrid

7. _____ involves measuring progress toward project objectives and taking corrective actions.
- Initiating
 - Planning
 - Executing
 - Monitoring and controlling
 - Closing
8. Which of the following is not a typical reason that project teams would use a predictive approach versus an agile approach to managing a project?
- The project has unclear up-front requirements.
 - The project team is inexperienced and dispersed.
 - Large risks are involved.
 - The completion date is fairly rigid.
9. Many people use to have a standard format for preparing various project management documents.
- methodologies
 - templates
 - project management software
 - standards
10. Which process group normally requires the most resources and time?
- Initiating
 - Planning
 - Executing
 - Monitoring and controlling
 - Closing
11. Accountants usually define _____ as a resource sacrificed or foregone to achieve a specific objective.
- money
 - liability
 - trade
 - cost
12. What is the main goal of project cost management?
- to complete a project for as little cost as possible
 - to complete a project within an approved budget
 - to provide truthful and accurate cost information on projects
 - to ensure that an organization's money is used wisely.
13. Which of the following is not an output of the project cost management process called estimating costs, according to the PMBOK® Guide?
- activity cost estimates
 - a cost baseline
 - basis of estimates
 - project documents updates.

14. If a company loses \$5 for every \$100 in revenue for a certain product, what is the profit margin for that product?
- a. -5 percent
 - b. 5 percent
 - c. -\$5
 - d. \$5.
15. _____ reserves allow for future situations that are unpredictable.
- a. Contingency
 - b. Financial
 - c. Management
 - d. Baseline.
16. Project work is most successful in an organizational culture where all of the following characteristics are important except _____.
- a. member identity
 - b. group emphasis
 - c. risk tolerance
 - d. control
17. 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
18. Which of the following is not part of project human resource management?
- a. resource estimating
 - b. acquiring the project team
 - c. developing the project team
 - d. managing the project team
19. What technique can you use to resolve resource conflicts by delaying tasks?
- a. resource loading
 - b. resource leveling
 - c. critical path analysis
 - d. overallocation
20. What are the five stages in Tuckman's model of team development, in chronological order?
- a. forming, storming, norming, performing, and adjourning
 - b. storming, forming, norming, performing, and adjourning
 - c. norming, forming, storming, performing, and adjourning
 - d. forming, storming, performing, norming, and adjourning

Section B: Quick Quiz
(15 Marks)

Each question is worth 1 mark. All questions are compulsory

1. What three knowledge areas comprise the triple constraint of project management?
2. What is the popular designation for people certified as project managers by the Project Management Institute?
3. What project management certifications can students earn without work experience?
4. What are the phases of the traditional project life cycle?
5. What type of organizational structure has project team members reporting to at least two bosses?
6. In which process group should you spend the most time and money?
7. What is the main purpose of a project management plan?
8. What does RACI stand for in a RACI chart?
9. Name one document that is a key input of a project scope statement.
10. What is the most common type of task dependency?
11. Provide a few examples of organizational process assets.
12. Which step in project time management sounds like it belongs under scope management?
13. Which project management process group(s) includes activities from every single knowledge area?
14. What is the most popular agile methodology?
15. What type of organizational structure gives the least amount of authority to project managers?

Section C: Short Answer Questions

(40 marks)

Each question is worth 2 marks. All questions are compulsory

1. Can recent college graduates expect to be project managers right away? What is a typical career path for a project manager?
2. 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?
3. Discuss ethical decision that project managers often face. Do you think a professional code of ethics makes it easier to work in an ethical manner?
4. Name two significant characteristics of effective project managers?
5. Name two characteristics of organizational culture that help project management.
6. Explain the four frames of organizations. How can they help project managers understand the organizational context for their projects?
7. 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 your experience on any type of project.
8. Why do you think organizations should develop their own information technology project management methodologies? Why can't they just follow a book or a methodology that has already been developed?
9. Approximately how much time do good project managers spend on each process group and why.
10. Explain some of the basic principles of cost management, such as-
 - tangible and intangible
 - costs and benefits,
 - direct and indirect costs
 - reserves

11. Discuss ways that you have seen people manage stakeholder engagement in your class room or work environments. Which approaches seem to work the best?
12. Describe the main items in a Gantt chart. Do you think everyone uses Gantt charts properly? Why or why not?
13. Discuss methods for shortening a project schedule. What are some of the advantages and disadvantages of shortening project schedules?
14. What is a milestone? Provide a few examples of milestones.
15. Why do you think schedule issues often cause the most conflicts on projects?
16. Create a mind map of a SWOT analysis for your organization. Include at least two strengths, weaknesses, opportunities, and threats, and then provide ideas for at least three potential projects.
17. What is PERT? What is the formula you use when using PERT?
18. What is a network diagram? Describe two network diagramming methods.
19. What are the main types of contracts if you decide to outsource? What are the advantages and disadvantages of each?
20. Suppose that your company is trying to decide whether it should buy special equipment to prepare high-quality publications itself or lease the equipment from another company. Suppose that leasing the equipment costs \$240 per day. If you decide to purchase the equipment, the initial investment is \$6,800, and operations will cost \$70 per day. After how many days will the lease cost be the same as the purchase cost for the equipment? Assume that your company would only use this equipment for 30 days. Should your company buy the equipment or lease it?

Section D: Case Studies (25 Marks)

Answer any five out of seven questions. Each question is worth 5 marks.

5 × 5 = 25 marks

Case study: 1

Nick Carson recently became project manager of a critical biotech enterprise at his Silicon Valley Company. This project involved creating the hardware and software for a next generation (next-gen) DNA-sequencing instrument used in assembling and analyzing the human genome. Several companies were competing to build smaller, faster sequencing instruments that would reduce the costs and improve the quality of data analysis in this rapidly changing field. The biotech project was the company's largest endeavor, and it had tremendous potential for future growth and revenue.

Unfortunately, there were problems managing this large project. It had been under way for three years and had already gone through three different project managers. Nick had been the lead software developer on the project before top management made him the project manager. The CEO told him to do whatever it took to deliver the first version of the product in four months and a production version in nine months. Negotiations for a potential corporate buyout with a larger company influenced top management's sense of urgency to complete the project.

Highly energetic and intelligent, Nick had the technical background to make the project a success. He delved into the technical problems and found some critical flaws that kept the next-gen DNA-sequencing instrument from working. Nevertheless, he was having difficulty in his new role as project manager. Although Nick and his team got the product out on time, top management was upset because Nick did not focus on managing all aspects of the project. He never provided them with accurate schedules or detailed plans of what was happening on the project. Instead of performing the work of project manager, Nick had taken on the role of software integrator and trouble-shooter. Nick, however, did not understand top management's complaints—he delivered the product, didn't he? Didn't they realize how valuable he was?

Tasks:

Answer the following questions:

- a) What do you think the real problem was in this case?
- b) Does the case present a realistic scenario? Why or why not?
- c) Was Nick Carson a good project manager? Why or why not?
- d) What could Nick have done to be a better project manager?
- e) What should top management have done to help Nick?

Case study: 2

You and your team are continuing your work on the Global Treps Project. Your project sponsor, Dr. K., has asked you to refine the existing cost estimate for the project so you can evaluate supplier bids and have a solid cost baseline for evaluating project performance. Recall that your schedule and cost goals are to complete the project in six months for under \$120,000. You planned to use up to \$50,000 total to pay yourself and your team members, and your initial estimates were \$30,000 for travel expenses, \$20,000 for hardware and software, and \$20,000 for organizing four events, including consultants, legal/business fees, etc.

Tasks:

Assume that you have completed three months of the project. The BAC was \$120,000 for this six-month project. You can also make the following assumptions:

$$PV = \$60,000 \quad EV = \$55,000 \quad AC = \$50,000$$

- a) What is the cost variance, schedule variance, cost performance index (CPI), and schedule performance index (SPI) for the project?
- b) How is the project doing? Is it ahead of schedule or behind schedule? Is it under budget or over budget?
- c) Use the CPI to calculate the estimate at completion (EAC) for this project. Is the project performing better or worse than planned?
- d) Use the SPI to estimate how long it will take to finish this project.

Case study: 3

Erica Bell is in charge of the Project Management Office (PMO) for her consulting firm, JWD Consulting, which has grown to include more than 200 full-time consultants and even more part-time consultants. JWD Consulting provides a variety of consulting services to assist organizations in selecting and managing IT projects. The firm focuses on finding and managing high-payoff projects and developing strong metrics to measure project performance and benefits to the organization after the project is implemented. The firm's emphasis on metrics and working collaboratively with its customers gives it an edge over many competitors.

Joe Fleming, the CEO, wanted his company to continue to grow and become a world-class consulting organization. Because the core of the business is helping other organizations with project management, he felt it was crucial for JWD Consulting to have an exemplary process for managing its own projects. He asked Erica to work with her team and other consultants in the

firm to develop several intranet site applications that would allow them to share their project management knowledge. He also thought that the firm should make some of the information available to the firm's clients. For example, the firm could provide project management templates, tools, articles, links to other sites, and an Ask the Expert feature to help build relationships with current and future clients. Because JWD Consulting emphasizes the importance of high-payoff projects, Joe also wanted to see a business case for this project before proceeding.

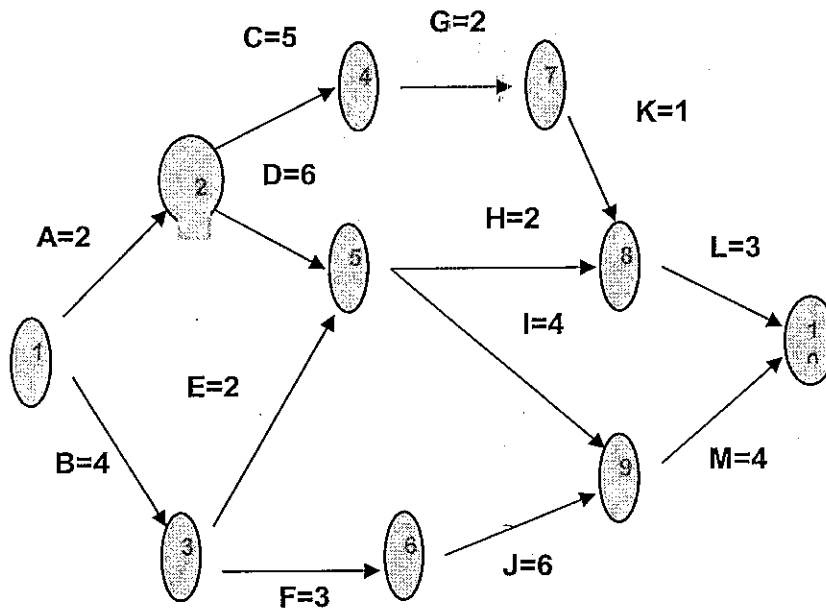
Erica Bell and her team finished the project management intranet site project on November 4, as planned in their project charter. They went over budget, but Joe had approved Erica's request for additional funds, primarily for purchasing external software and customization. Like any project, they had a few challenges, but they worked together as a team and used good project management to meet their sponsor's and users' needs. They received positive initial feedback from internal consultants and some of their clients on the new intranet site. People were asking for templates, examples, and expert advice even before the system was ready. (If they had used an agile approach, these features could have been delivered earlier.) About a year after the project was completed, Erica worked with a member of the Finance department to review the benefits of the new system. Although the Project Management Office lost one of its staff members, it did not request a replacement because the new system helped reduce its workload. This saved the firm about \$70,000 a year for the salary and benefits of that staff position. The team also had data to show that the firm saved more than \$180,000 on contracts with clients because of the new system, compared with their projection of \$160,000. The firm was breaking even with the Ask the Expert feature during the first year, and Erica estimated that the system provided \$30,000 in additional profits the first year by generating new business, instead of the \$40,000 the team had projected. However, savings from the PMO staff position salary and the extra savings on contracts more than made up for the \$10,000 difference. Joe was proud of the project team and the system they produced to help make JWD Consulting a world-class organization.

Tasks:

- a) Define top management role here.
- b) Define the types of system used in this case study. Which system do you support? Why?
- c) Does the system play an important role here? How?
- d) Do you support ERICA'S decisions? Why?

Case study: 4

Determine how many paths there are in this network diagram, and list the paths and their lengths. For example, a path might be written as A-B-E-F-L with a length of 12 days. What is the critical path for this project and how long is it?



Case study: 5

Given the following information for a one-year project, answer the following questions. Recall that PV is the planned value, EV is the earned value, AC is the actual cost, and BAC is the budget at completion.

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

- What is the cost variance, schedule variance, cost performance index (CPI), and schedule performance index (SPI) for the project?
- How is the project doing? Is it ahead of schedule or behind schedule? Is it under budget or over budget?

- c. Use the CPI to calculate the estimate at completion (EAC) for this project. Is the project performing better or worse than planned?
- d. Use the SPI to estimate how long it will take to finish this project.

Case study: 6

List and describe each of the ten project management knowledge areas. What is the triple constraint?

Case study: 7

Perform a financial analysis for a project. Assume the projected costs and benefits for this project are spread over four years as follows: Estimated costs are \$200,000 in year 1 and \$30,000 each year in years 2, 3, and 4. Estimated benefits are \$0 in year 1 and \$100,000 each year in years 2, 3, and 4. Use a 9 percent discount rate and round the discount factors to two decimal places. Create a spreadsheet to 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.

The End