



Undergraduate Programme
Department of Computer Science and Mathematics
Semester 2 Year 2019
FINAL COURSE 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 Theory Paper is worth 100 marks contributes 50% of the total course assessments.**
6. This paper contains three (3) sections A, B and C. All questions are compulsory to answer.
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	1-30	Multiple Choice Questions	30	50 minutes
B	1-16	Open- Ended Questions	60	110 minutes
C	1- 4	Case Study Questions	10	20 minutes
		TOTAL	100	180 Minutes

SECTION A

MULTIPLE CHOICE

30 MARKS

Write the question number and the letter which represents the **most** appropriate answer for each question in the answer booklet.

1. Which of the following is true of a matrix organizational structure?
 - ☒ a. In a matrix organizational structure, employees are organized into departments according to their skills, and there is little interaction between employees from different departments.
 - b. Project managers in matrix organizations have staff from only a single functional area working on their projects.
 - c. In a strong matrix organizational structure, the project manager controls the project budget and has moderate to high authority.
 - d. A matrix organizational structure is hierarchical, but instead of functional managers reporting to the CEO, program managers report to the CEO.
2. Scope creep refers to _____.
 - ☒ a. the tendency for project scope to keep getting bigger and bigger.
 - b. subdividing project deliverables into smaller pieces.
 - c. the approved project scope statement and its associated WBS.
 - d. a task at the lowest level of the WBS.
3. Which of the following is most likely to be a reason for inaccuracies in information technology cost estimates?
 - ☒ a. Estimates take a long time to be worked out.
 - b. People lack estimating experience.
 - c. Human beings are biased toward overestimation.
 - d. Only software development provides the scope for estimates to be accurate.
4. Process improvement plan, quality metrics, and quality checklists are the outputs of the _____ process of project quality management.
 - a. controlling quality
 - ☒ b. planning quality management
 - c. quality certification
 - d. performing quality assurance
5. The highest level of needs in Maslow's structure is referred to as a _____ need.
 - a. deficiency
 - b. growth
 - c. safety
 - ☒ d. physiological
6. As the number of people involved in a project _____, the complexity of communications _____.
 - a. increases, decreases
 - b. decreases, increases
 - c. increases, stays constant
 - ☒ d. increases, increases

7. Validated changes and validated deliverables are the outputs of the _____ subprocess of project quality management.
- a. initiating
 - b. closing
 - ☒ c. monitoring and controlling
 - d. executing
8. In the MBTI, the _____ dimension relates to the manner in which you gather information.
- a. Extrovert/Introvert
 - b. Thinking/Feeling
 - c. Judgment/Perception
 - ☒ d. Sensation/Intuition
9. _____ 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. Prototyping
 - b. Systems thinking
 - c. Mind mapping
 - ☒ d. Benchmarking
10. _____ helps develop an accurate projection of a project's financial expenses and benefits.
- a. Critical path analysis
 - ☒ b. Fast tracking
 - c. Life cycle costing
 - d. Crashing
11. Sefo is a project manager, and wants to praise a team member, Adrian, for doing a good job on a particular project. However, he knows that Adrian tends to be an introvert. Which of the following communication methods would Adrian be most comfortable with?
- a. Call Adrian in for a private meeting to appreciate his work.
 - b. Call a team meeting to praise Adrian for his work on the project.
 - c. Announce Adrian's accomplishment on the company Web site.
 - ☒ d. Have top management and the other teams in the company award Adrian.
12. A draft schedule for a project is most likely to be found in a _____.
- a. project buffer
 - ☒ b. project charter
 - c. resource breakdown structure
 - d. project's dummy activities list
13. The _____ characteristic of organizational culture describes the degree to which management's decisions take into account the effect of outcomes on people within the organization.
- a. member identity
 - b. group emphasis
 - c. people focus
 - ☒ d. unit integration
14. Which of the following is true of analogous estimates?
- a. Their main disadvantage is that they cost more than other techniques.
 - b. They are the only technique which do not require expert judgement.
 - ☒ c. They are most reliable when previous projects are similar in fact with current projects.
 - d. They use project characteristics in a mathematical model to estimate project costs.

15. _____ involves assigning the needed personnel to work on the project.
- ☒ a. Planning HR management
 - b. Developing the project team
 - c. Acquiring the project team
 - d. Managing the project team
16. _____ help users to identify the vital few contributors that account for most quality problems in a system.
- ☒ a. Gantt charts
 - b. Pareto charts
 - c. Control charts
 - d. Tracking Gantt charts
17. VaniWear is a footwear company which has recently set up its store in Ba. To manufacture its products, VaniWear incurs a range of different costs. Which of the following would be an example of an indirect cost?
- a. Cost of machines to produce shoes
 - ☒ b. Salary paid to factory workers
 - c. Electricity used to run its factories
 - d. Cost of leather used to manufacture shoes
18. Which of the following is recommended for the creation of a good WBS?
- ☒ a. Any WBS item should be the responsibility of all the people working on it.
 - b. A unit of work should appear at only one place in the WBS.
 - c. Each WBS item should be created assuming that the requirements are inflexible.
 - d. The work content of a WBS item is independent of the WBS items below it.
19. Six Sigma's target for perfection is the achievement of no more than _____ defects, errors, or mistakes per million opportunities.
- a. 1.34
 - ☒ b. 3.4
 - c. 34
 - d. 13.4
20. According to McClelland's acquired-needs theory, people with a high need for _____ desire harmonious relationships with other people and need to feel accepted by others.
- ☒ a. affiliation
 - b. self-actualization
 - c. power
 - d. achievement
21. Which of the following is true of earned value? $EV = BV \times P\%$
- a. It is the actual cost plus the planned cost.
 - b. It is based solely on the total cost estimate to be spent on an activity.
 - ☒ c. It is an estimate of the value of the physical work actually completed.
 - d. It is also known as the planned value.
22. The _____ for an activity is the latest possible time an activity might begin without delaying the project finish date.
- a. early finish date
 - ☒ b. late finish date
 - c. late start date
 - d. early start date

23. A(n) _____ is done to test each individual component (often a program) to ensure that it is as defect-free as possible.
- a. integration test
 - b. unit test
 - c. user acceptance test
 - ~~d. system test~~
24. Taking time to renew oneself physically, spiritually, mentally and socially is _____.
- ~~a. empathic mirroring~~
 - ~~b. sharpening the saw~~
 - c. synergizing
 - d. thinking win/win
25. Which of the following is true of a rough order of magnitude estimate? *120m*
- ~~a. It is used to allocate money into an organization's budget.~~
 - b. It provides an estimate of what a project will cost.
 - c. Its timeframe is always less than a year prior to project completion.
 - d. It is a type of estimate that is done in the final stages of a project.
26. _____ is the degree to which a system performs its intended function.
- a. Reliability
 - ~~b. Validity~~
 - c. Maintainability
 - d. Functionality
27. The capacity to understand the motivations, intentions and desires of others is _____.
- ~~a. emotional intelligence~~
 - b. intrapersonal intelligence
 - c. interpersonal intelligence
 - d. human intelligence
28. The process of controlling costs primarily involves _____.
- a. determining the policies for project costs.
 - ~~b. managing changes to the project budget.~~
 - c. finalising the procedures for project costs.
 - d. determining a basis for estimates.
29. Ravishek recently acquired the running of his father's IT Company. One month into his new role Ravishek revises the process parameters in response to complaints from vendors that products were not ready on time. This would be an example of _____.
- a. cost forecasting
 - b. a preventive action
 - c. defect repairs
 - ~~d. a corrective action~~
30. Which of the following is true about the agile method?
- a. It is often used when a project team can express the scope early in the product life cycle.
 - b. It is used when a project team wants to provide a potentially shippable product earlier rather than later.
 - ~~c. It uses several iterations or deliveries of software instead of waiting until the end of the project to provide a product.~~
 - d. It is used when project teams want to use the predicative approach to a project.

SECTION B

OPEN - ENDED QUESTION

60 MARKS

Answer ALL the questions from this section in the answer booklet provided.

- 1) There is no one best way to be a leader. Most experts agree that the best leaders are able to adapt their style to needs of the situation and Daniel Goleman, author of *Emotional Intelligence* and *Primal Leadership*, has describes six leadership styles. Explain any 4 of these styles and discuss the situations best suited for these styles. (4 marks)
- 2) Sumeet has been recently promoted and given the role of Project Manager to a small scale project named Panther. Sumeet feels that he needs to expand his team. He has requested one of his team members, Vinil to determine the number of communication channels that they could have for Panther if they work with the current six team members and also find out the communication channels if Project Panther grows to be of 10 team members. Help Vinil use this formula to find out the number of communication channels for both the scenarios. Show all calculations. (2 marks)

Formula: Number of communication channels = $n(n-1)/2$;
where n is the number of people involved.

- 3) Scrum is the leading agile development method used today. Discuss the basic scrum framework explaining each step thoroughly. (5 marks)

Table 1: Network diagram data for a Project Phoenix.

Activity	Predecessor Activity	Duration (weeks)
1 A	-	3
2 B	A	5
3 C	A	7
4 D	B	10
5 E	C	5
6 F	D, E	4

- 4) Shaniza is the Project Manager for Project Phoenix. Consider Table 1 data shown above for Project Phoenix and help Shaniza answer question (a-e) accordingly.
- Draw an AOA network diagram representing Project Phoenix. (2 marks)
 - Use the network diagram and write all of the possible paths and their duration for Project Phoenix. (2 marks)
 - Discuss critical paths and its importance to a project? (2 marks)
 - What is the critical path for this project and how long is it? (1 mark)
 - What is the shortest possible time needed to complete this project? (1 mark)

- 5) What are the five phases in the DMAIC process? Briefly describe each one. (5 marks)
- 6) In relation to communications management, discuss the importance of understanding tone of voice and body language in comprehending the meaning of what people say. Give examples of how the same words said in different ways have totally different meanings. (2 marks)
- 7) If you find a stakeholder of a project saying "I didn't know how bad things were." What does this statement made by the stakeholder indicate? (2 marks)
- 8) Draw and explain Maslow's hierarchy of needs. (3 marks)
- 9) Naqilo is the project manager for Project Angel. Assume that he has completed three months of the project. The BAC was \$120,000 for this six months project. PV is \$60,000; EV is \$55,000; AC is \$50,000. Use formulas and the given values to calculate the answers to parts (a-d). Show all calculations. CV SV CPI
 - a. Calculate the cost variance, schedule variance, cost performance index (CPI) and schedule performance index (SPI). (4 marks)
 - b. With the help of the values in part a, explain how the project is doing so far. Is it ahead of schedule or behind? Is it under budget or over budget? (1 mark)
 - c. Use CPI to calculate the estimate at completion (EAC) for the project. Is the project performing better or worse than planned? Explain. (1 mark)
 - d. Use SPI to calculate how long it will take to finish Project Angel. (1 mark)
- 10) One of the recent trends affecting IT Project Management is virtual teams. Discuss what virtual team is and explain 2 advantages and 2 disadvantages of using virtual teams in a project. (3 marks)
- 11) Describe the main items in a Gantt chart. Do you think everyone uses Gantt charts properly? Why or why not? (2 marks)
- 12) Review the following scenarios and then write a paragraph for each one describing what media you think would be most appropriate to use and why? (6 marks)
 - a. Many of the technical staff on the project arrives at work from 9.30am to 10am, while the business users always arrive before 9am. The business users have been making comments. Neha, the project manager wants to have the technical people come in 9am although many of them leave late.
 - b. Miliakere's company is bidding on a project for the entertainment industry. She knows that she need new ideas on how to put together the proposal and communicate her approach in a way that will impress the customer.
 - c. Vineshni's business has been growing successfully, but they are becoming flooded with phone calls and e-mails asking similar types of questions.

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- 13) Briefly describe what happens in each of the five project management process groups (initiating, planning, executing, monitoring and controlling, and closing). What types of activities occur before initiating a project? **(3 marks)**
- 14) Explain the following task dependencies with help of examples. **(2 marks)**
- a. Start-to-finish (SF)
 - b. Start-to-Start (SS)
- 15) When using Microsoft Project 2007 to create her project schedule duration, Divyanshi group member Shalveen suggest that they use the 8/80 rule of thumb. Explain what the purpose of this rule is and how it works? **(2 marks)**
- 16) Compare and contrast the following SDLC models: ^{→ predicted} water fall life cycle model, the spiral life cycle model, incremental build life cycle model, prototyping life cycle model. **(4 marks)**

Answer ALL the questions from this section in the answer booklet provided.

Tom Walters, is a recently appointed Director of Information Technology at a small, private institution in the Southwest College where he had been a respected faculty member for the past 15 years. The college offers a variety of programs in the liberal arts and professional areas with 1,500 fulltime traditional students and about 1,000 working adults who attend evening programs. Many instructors supplement their courses with information on the Internet and course websites, but the college does not offer distance-learning programs. The college's niche is serving students in the region who like the setting of a small liberal arts college and want to make connections with each other and their community. Like other institutions of higher learning, the use of IT at the college has grown tremendously in the past 10 years. Wi-Fi is available everywhere on campus. But only a few classrooms on campus have computers for the instructors and students, and most other classrooms have only instructor stations and projection systems.

Tom knew that several colleges throughout the country require that all students lease or own laptops or tablets and that these colleges incorporate technology into most courses. This idea fascinated him. He and two other members of the IT department visited a local college that had required all students to lease laptops for the past three years, and they were very impressed with what they saw and heard. Because tablets were becoming more popular, they thought it would make more sense to require tablets instead of laptops. Tom had heard how easy it was for faculty members to create interactive course materials that would run on tablets; these materials also could help reduce the cost of textbooks, a concern expressed by many students. Tom and his staff developed plans to start requiring students either to lease or purchase tablets at their college starting the next academic year.

Tom sent an e-mail to all faculty and staff in September, and briefly described his plans. He did not get much response, however, until the February faculty meeting. As he described some of the details of his plan, the chairs of the History, English, Philosophy, and Economics departments all voiced opposition to the idea. They eloquently stated that the college was not a technical training school and that they did not have time to write their own course materials to run on tablets. They liked the books they used, and students could already buy books in an electronic format, but most preferred the print versions. Members of the Computer Science department voiced their concern that almost all of their students already had state-of-the art laptops and would not want to pay a mandatory fee to lease less-powerful tablets. The director of the adult education program expressed her concern that many adult-education students would balk at an increase in fees or required technology. Tom was in shock to hear his colleagues' responses, especially after he and his staff had spent a lot of time planning how to implement tablets at their campus.

(Source: Schwalbe, K. (2016), "Information Technology Project Management", Cengage Learning, 8th Ed., p.44)

- 1) In your opinion, what is the status of the project? Is it failed or can it continue? Explain your answer. (1 mark)
- 2) What do you suggest Walters should do now and why? (2 marks)
- 3) Discuss what issues Walters didn't consider in his project. (2 marks)
- 4) Project Managers must understand organizations well to make sure that their project to be successful. An organizations can be viewed as having four different frames and project managers must learn to work within all these four frames to function well in organizations. Discuss all the 4 framework with respect to Walters's case. Explain how he related to each frame. Did he fully utilize all the frames? If so then which frames he has used, how did he apply it to his case? Suggest what you would had done in his place? (5 marks)

End of Exam

SHPS

