Beijing-Dublin International College

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COMP3028J Software Project Management

MODULE COORDINATOR: <u>LIU ZHAOYING</u>

Time Allowed: <u>90 minutes</u>

Instructions for Candidates

BJUT Student ID: _____**UCD Student ID:** _____

I have read and clearly understand the Examination Rules of both Beijing University of Technology and University College Dublin. I am aware of the Punishment for Violating the Rules of Beijing University of Technology and/or University College Dublin. I hereby promise to abide by the relevant rules and regulations by not giving or receiving any help during the exam. If caught violating the rules, I accept the punishment thereof.

Honesty Pledge： _____ **(Signature)**

Instructions for Invigilators
All electronic devices, notebooks, books, work papers are strictly prohibited.

Obtained
Score

Part 1: Multiple Choice. Choose the best answer to each of the following questions.
(1 points each question，total 20 points）

1. Which of the following is the main value of project management?
    A. It provides a boost to your career
    B. Greater than $1000 a minute
    C. It helps you easily plan the effort before you start, and then smoothly status and manage it once underway
    D. It can improve your leadership

2. Who in the organization can use project management?
    A. Only the project manager
    B. Only the project team member.
    C. Only senior managers
    D. Everyone

3. What are the key features of an effort that let you know project management will be useful?
    A. There are several stakeholders are in disagreement
    B. They will require a very careful transition from the project team to the business environment ecosystem
    C. The effort is temporary and in some way unique
    D. The effort has comparatively large value

4. What is a "Program"?
    A. A project that exceeds a defined monetary value specified by standard procedures
    B. Inter-related projects that are managed as a group to optimize a program level objective
    C. A project that will need to be sustained over a period of many years
    D. A collection of computer source code that tries to artificially develop a superior consciousness.

5. The zero defects concept is:
    A. Proposed by Joseph M. Juran, it is a performance standard for management
    B. Proposed by W. Edwards Deming, it is a motivational technique that promotes "doing it right the first time"
    C. Proposed by Philip B. Crosby, it is used by management to communicate to all employees that everyone should do things right the first time
    D. Proposed by Kaoru Ishikawa, it leads to process improvement.

6. Using the WBS shown below, which one is NOT a typical work package?

1.	**Software development**
1.1	Systems design
1.1.1	Requirement Analysis
1.1.2	Flowcharting
1.2	Coding
1.2.1	Language selection

    A. Systems design
    B. Language selection
    C. Requirement Analysis
    D. Flowcharting

7. A construction project manager has a meeting with the team foreman, who tells him that there's a good chance that a general strike will delay the project. They brainstorm to try to find a way to handle it, but in the end decide that if there's a strike, there is no useful way to minimize the impact to the project. This is an example of which risk response strategy?
   A. Mitigate
   B. Avoid
   C. Transfer
   D. Accept

8. You're a project manager for a construction project. You don't control the project budget, the team doesn't report to you, and you routinely have to request their time from their manager. What kind of organization do you work in?
   A. Functional
   B. Weak matrix
   C. Strong matrix
   D. Projectized

9. Which of the following is NOT a project?
   A. Repairing a car
   B. Building a highway overpass
   C. Running an IT support department
   D. Filming a motion picture

10. Which of the following is correct order for stages in Tuckman ladder?
    A. Foaming, Steaming, Norming, Perfuming, Dispersing
    B. Forming, Storming, Protecting, Norming, Dispersing
    C. Framing, Storming, Norming, Protecting, Adjourning
    D. Forming, Storming, Norming, Performing, Adjourning

11. You are managing a software project. Your QA manager tells you that you need to plan to have her team start their test planning activity so that it finishes just before testing begins. But other than that, she says it can start as late in the project as necessary. What's the relationship between the test planning activity and the testing activity?
    A. Start-to-Start (SS)
    B. Start-to-finish (SF)
    C. Finish-to-Start (FS)
    D. Finish-to-Finish (FF)

12. You're planning the schedule for a highway construction project, but the final date you came up with will run into the next budget year. The state comes up with capital from a reserve fund, and now you can increase the budget for your resources. What's the BEST way to compress the schedule?
    A. Use the extra budget to increase your contingency reserve
    B. Crash the schedule
    C. Hire more experts to use expert judgment so your estimates are more accurate
    D. Go back to your three- point estimates and use the most optimistic ones

13. You are working on a project with a CPI of 0.80 and an SPI of 1.05. Which of the following BEST describes your project?
    A. Your project is under budget and behind schedule
    B. Your project is over budget and behind schedule
    C. Your project is under budget and ahead of schedule
    D. Your project is over budget and ahead of schedule

14. Which of the following tools and techniques is used to show which categories of defects are most common?
    A. Control charts
    B. Pareto charts
    C. Flow charts
    D. Fishbone diagrams

15. A RACI Matrix is one way to show roles and responsibilities on your project. What does RACI stand for?
    A. Responsible, Accountable, Consult, Inform
    B. Responsible, Approve, Consult, Identify
    C. Retain, Approve, Confirm, Inform
    D. Responsible, Accountable, Confirm, Inform

16. You have six people working on your team, a sponsor and two clients, all of whom need to be kept informed of your project's progress. How many lines of communication are there?
    A. 36
    B. 15
    C. 28
    D. 45

17. Two team members are having an argument over priorities in your project. One thinks that you should write everything down before you start doing any work, the other thinks you can do the work while you finish the documentation. You sit both of them down and listen to their argument. Then you decide that you will write most of it down first but will start doing the work when you are 80% done with the documentation. What conflict resolution technique are you using?
    A. Confronting
    B. Smoothing
    C. Compromise
    D. Forcing

18. Which of the following contract types places the greatest risk on the seller??
    A. Cost-plus-fixed-fee contract
    B. Firm-fixed-price contract
    C. Cost-plus-incentive-fee contract
    D. Fixed-price-incentive contract

19. Your company is establishing a cost of quality approach to determine the relative importance of its quality problems and to identify major opportunities for cost reduction. Your company believes this approach can help is evaluate its success in achieving quality objectives. When setting up this approach, you were asked to categorize four types of costs: prevention, appraisal, internal failure, and external failure. As you examine the cost of quality, however, you realize that training and its associated costs have become a major factor. Training costs are include in which one of the following areas?
    A. Appraisal costs
    B. Prevention costs
    C. Internal failure costs
    D. External failure costs

20. Your organization is characterized by hierarchical organizational structures with rigid rules and policies and strict supervisory controls. Individual team members are not expected to engage in problem solving or use creative approaches to plan and execute work. But because a lot of company work involves crisis situations, this authoritarian management style has some benefits. Your organization is characterized by which one is the following theories?
    A. Herzberg's Hygiene Theory
    B. Maslow's Hierarchy of Needs
    C. MacGregor's Theory X
    D. Expectancy Theory

Obtained Score

Part 2: True (T) or False (F). (2 points each question，total 10 points）

1. Risks are problems identified during planning, and are then transferred to the issue list once the execution stage begins.

2. Quality Control is evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.

3. Schedule fast tracking is tracking the project progress as fast as possible and then rushing the work along the schedule critical path as quickly as the team can perform.

4. If your expected value is 500, and the standard deviation is 12, you can see with approximately 95 percent confidence rating the activity will take between 464 and 536 days.

5. You've sent a questionnaire to park ranger and engineers at tent and hiking equipment companies to gather their opinions on the risk of falling off of a cliff. You remove their names from their responses, copy them, and send them back to everyone to get their feedback. The information gathering technique you are using is Delphi Technique.

Obtained

Score

Part 3: Answer the following questions（10 points each question，total 40 points）

1. Please describe the five project process groups, as defined by the Project Management Body of Knowledge (PMBOK) and the purpose of each one.

2. What is quality, please describe the characteristics of software quality and explain why software quality management is important

3. What are the essential skills of the project manager, and what are the differences between project

management and functional management？

4. Please list the four types of software process models and five software process maturity levels, and explain how does Agile overcome the problems of Waterfall?

Obtained Score	**Part 4: Calculation questions（10 points each question，total 30 points）**

1. You're managing a highway construction project. Your total budget is $650,000, and there are a total of 7,500 hours of work scheduled on the project. You check with your accounting department, and they tell you that you've spent a total of 400,000. According to the schedule, your crew should have worked 4,500 hours, but your foreman says that the crew was allowed to work some overtime, and they've actually put in 4,875 hours of work.

    1) Based on this information, please calculate the following Earned Value numbers, and figure out if the project is behind schedule or ahead of schedule?

       BAC = _____ ;   PV = _____

       AC   = _____ ;   EV = _____

       SV = _____ — _____ = _____

       CV = _____ — _____ = _____

       SPI = _____ / _____ = _____

       CPI = _____ / _____ = _____

    2) Please use the EVM formulas from forecasting to calculate the EAC, ETC, VAC, and figure out will the project over budget or under budget when it's completed?

       EAC = _____ / _____ = _____

       ETC = _____ — _____ = _____

       VAC = __ _____ — _____ =_____

2. Here's a list of nodes for a PDM network diagram:

Name	Predecessor	Duration
Start	---	---
A	Start	6

B	A	4
C	B	5
D	A	1
E	D	4
F	E	8
G	Start	3
H	G	2
I	H, E	3
Finish	F, I, C	---

Please answer the following questions:

1) Draw the diagram based on it.

2) Calculate the ES, EF, LS, LF, and the Total Float of each activity

3. You are in charge of a wild project, after performing risk analysis, you got a table of the probability and impact of each risk.

Risk	Probability	Impact
Mudslide	5%	Lose $750 in damage costs
High winds	35%	Cost $48 to replace equipment
Wind generator is usable	15%	Save $800 in battery costs
Truck rental unavailable	10%	Costs $350 for last-minute rental

1) Calculate the EMV for each of these three risks, and if these are the only risks on the project, calculate the total EMV.

2) The national weather service says there's a 35% chance of high winds, which means there's a 65% chance of low winds, you are considering whether to buy a tent. The heavier tent costs $350, while the lighter tent costs $130. The heavier tent will cost more, but it has better protection against the wind. If there are high winds, you will lose $48 worth of equipment with a heavy tent, but will lose $953 worth of equipment with a light one. If there are low winds, you will lose $10 worth with a heavy tent, and $15 worth with a light tent. Please calculate the EMV and use the decision tree to find out is it worth spending $350 on a heavier

tent?