

UNIVERSITY OF RUHUNA
BACHELOR OF COMPUTER SCIENCE (GENERAL) DEGREE
LEVEL II (SEMESTER II) EXAMINATION – JANUARY 2018

Course Unit: CSC2252 – Project Management

Duration: 2 hours

Answer All Questions

1. Answer the given questions using the case study given below.

ABC Company is growing rapidly and has decided to purchase an off-the-shelf payroll package to replace the existing in-house system. This will need new equipment and some additional network cabling in some offices. John is managing this project.

First, John needs to agree with a specification of requirements with the payroll manager. Based on the requirements, John, payroll manager and project board are planning to compare payroll packages available in the market, select and order the most appropriate package to meet the requirements of the company. Some minor modifications will be required to the selected payroll package.

Then John needs to specify and order the new hardware and network communications equipment that required for the new system. Then plans need to be drawn up to test all this new equipment. Separate testing plans are needed for the modified software, followed by full integration and acceptance testing, based on the agreed requirements.

The new hardware and communications will be installed and tested. Then the software can be installed, modified and tested; after which the integration testing can be undertaken. Whilst this is continuing, user training plans need to be drawn up. The users can be trained as soon as the integration testing is completed.

Before acceptance testing, John will need to specify and obtain the accounts data that is needed to implement new system. Once acceptance testing is completed successfully the live data can be loaded and the new system implemented.

a.

- i. Define *scope* of a project.
- ii. Identify three stakeholders of the project mentioned in the case study.
- iii. Explain the main purpose of a project charter and write down 5 main components in a project charter.
- iv. Write down three main goals of scope control in project management.
- v. Explain the main purpose of work breakdown structure (WBS) dictionary.

- b.
- i. Explain the three main principles followed in creating a work breakdown structure (WBS).
 - ii. Considering the activities described in the case study, draw a work breakdown structure (WBS). Your WBS needs to contain at least two breakdown levels, at least four work groups and more than 13 activities.
 - iii. Considering the different types of products that are produced at the various stages of the project described above, draw up a product breakdown structure (PBS) diagram for the project. This should include at least 12 different distinct products.

2.

- a.
- i. Define *quality* in project management.
 - ii. Explain the five main cost categories related to quality of a project.
 - iii. Name 5 tools that can be used for quality control of a project.
 - iv. Draw a pereto chart for the information given in Table 01 and identify the 2 main quality issues that contribute to the most of the quality problems.

Table 01

Complaints by the customer	Frequency per week
Installation errors in the software	20
Software stops suddenly	90
Errors in loading data	105
Cannot run more than 2 functions	50
Errors occur in File transferring	30

- b. Answer the following questions using the information given in **Table 02** and **Table 03** (Z-values are given in Table 03).

Table 02

Activity	a	m	b	t_c	Variance
A	17	29	47	30	25
B	6	12	24	13	9
C	16	19	28	20	4
D	13	16	19	16	1
E	2	5	14	6	4
F	2	5	8	5	1

Table 04

Year	Project P	Project Q
1	-9000	-7000
2	1000	2000
3	3000	5000
4	5000	3000

b.

- i. Explain the main processes in project cost management.
- ii. Peter found that his project has a planned value of \$33000, earned value of \$20000, actual cost of \$35000, and the budget at completion is \$250 000. Calculate the following.
 - Calculate cost performance index and schedule performance index for this project.
 - Is the project ahead of the schedule or behind? Is it under or over the budget?
 - Calculate the Estimate at completion for this project.

4.

a.

- i. Explain what is meant by resource loading in human resource management.
- ii. Write down four main benefits of resource leveling
- iii. Explain the main processes of project procurement management.
- iv. List three main types of Cost Reimbursable contracts and arrange them in the descending order of seller's risk.

b.

- i. Explain two different types of performance reports in project communication management.
- ii. "Conflict can be good for team working". Explain whether you agree or disagree with this statement.
- iii. List down five main conflict handling methods used in communication management.
- iv. You just found out that a major subcontractor of your project consistently provides deliverables late. The subcontractor approaches you and asks you to continue accepting late deliverables in exchange for a decrease in project costs. Name and explain the conflict handling mode used by the subcontractor.

Table 03

Z Value	Probability	Z Value	Probability
-3.0	.001	+0.0	.500
-2.8	.003	+0.2	.579
-2.6	.005	+0.4	.655
-2.4	.008	+0.6	.726
-2.2	.014	+0.8	.788
-2.0	.023	+1.0	.841
-1.8	.036	+1.2	.885
-1.6	.055	+1.4	.919
-1.4	.081	+1.6	.945
-1.2	.115	+1.8	.964
-1.0	.159	+2.0	.977
-0.8	.212	+2.2	.986
-0.6	.274	+2.4	.992
-0.4	.345	+2.6	.995
-0.2	.427	+2.8	.997

- i. Draw the Activity on node (AON) diagram of the project using the given information in Table 02.
- ii. Calculate the probability that the project would be completed before 64 days.
- iii. Calculate the probability that the project would be completed before 60 days.

3.

a.

- i. Write down the main difference between a positive and negative risk in projects.
- ii. Write down four main benefits of project risk management.
- iii. Tony is a Project Manager for software migration at a bank. A major risk that has been identified is falling short of human resources. As a strategy to respond to this risk, Tony, with support from Senior Management, provides good increments to his team members. What type of risk response is Tony following?
- iv. List three primary methods for determining the projected financial value of projects.
- v. Table 4 shows projects cash flows of projects P and Q over four years. Assume a discount rate of 10%. By calculating NPV for each project determine the best project to invest with.
[NPV is given by formula 01, where t is the time of the cash flow, I is the discount rate and C_t the net cash flow.]

$$NPV = \sum_{t=0}^N \frac{C_t}{(1+r)^t} \quad \text{--- (01)}$$