



**RAJARATA UNIVERSITY OF SRI LANKA  
FACULTY OF APPLIED SCIENCES**

**B.Sc. (General) Degree in Information and Communication Technology  
Third Year - Semester I Examination – November/December 2016**

**ICT 3205 – INFORMATION TECHNOLOGY PROJECT MANAGEMENT**

**Time: Two (2) hours**

**Examination Index No:** \_\_\_\_\_

**Important Instructions:**

- This paper has 4 questions in 14 pages.
- Answer all questions (25 marks each).
- Write your answers in English using the space provided in this question paper.
- Do not tear off any part of this question paper.
- Note that questions appear on both sides of the paper.
- If a page is not printed, please inform the supervisor immediately.

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**To be completed by the examiners:**

	Question numbers				Total Marks
Questions	1	2	3	4	
Marks					

### Question 01

Answer questions from (a) to (e) using the Work Breakdown Structure given in Figure 1.

Activity	Duration (Days)	Precedence	Number of Employees
A: Requirement Analysis	2	-	2
B: Design	2	-	2
C: Implementation	5	-	4
D: Documentation	1	A	1

Figure 1 - Work Breakdown Structure

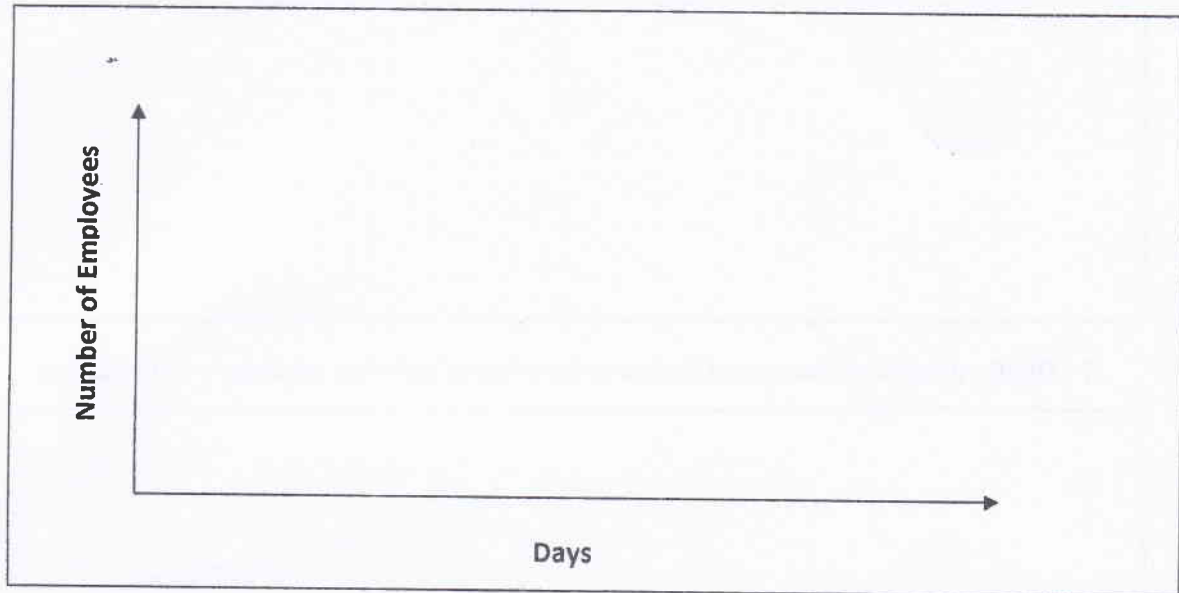
- a) Model the Network Diagram for Work Breakdown Structure given in Figure 1. Clearly label the activity nodes. (3 Marks)

- b) Find the Activity Float for each activity in the Network diagram which you modelled in Question 1 part (a) and state the Critical Path of it. (4 Marks)

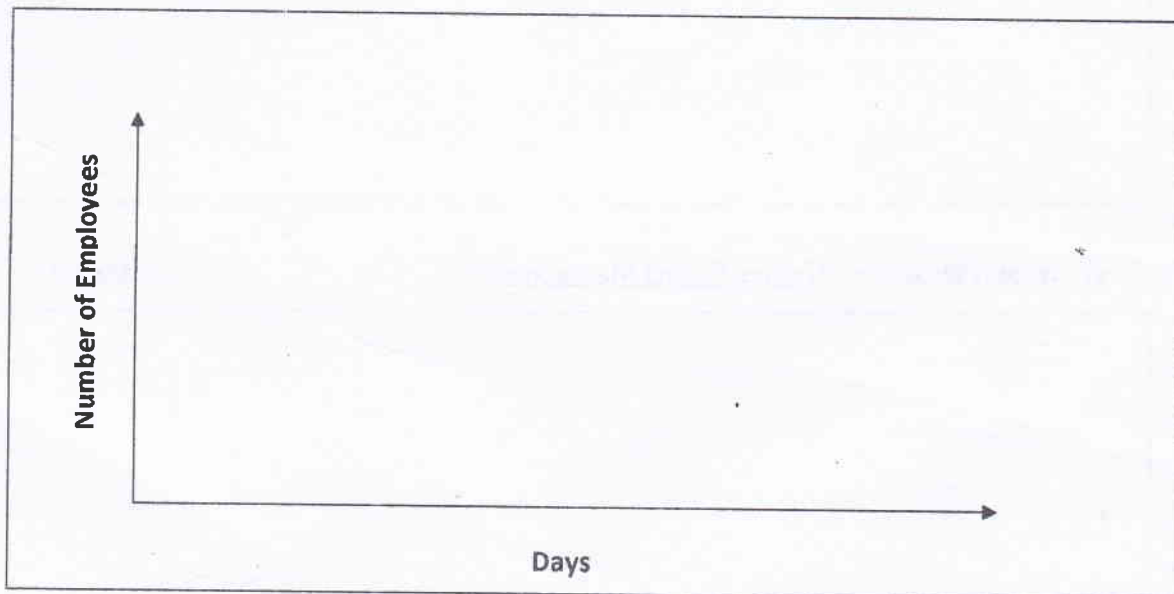
Activity	Activity Float
A	
B	
C	
D	

Critical Path

- c) Sketch a bar chart to demonstrate the human resource usage of this project. Suppose all activities start on day 1. (5 Marks)



- d) Apply Resource Leveling appropriately for this project to effectively utilize the human resource. Update the bar chart modeled in Question 1 part (c) to demonstrate suggested resource leveling for this project. (5 Marks)



- e) What happens to this project if activity D is delayed for one day and activity B is completed within 3 days? (2 Marks)

- f) Briefly discuss advantages of Resource Leveling in software projects. (3 Marks)

- g) What is meant by Effective Project Management? (3 Marks)

### Question 02

- a) Briefly explain how Covey's 7 Habits encourage developing Teamwork, Collaboration, and Communication Skills within a project team. (3 Marks)

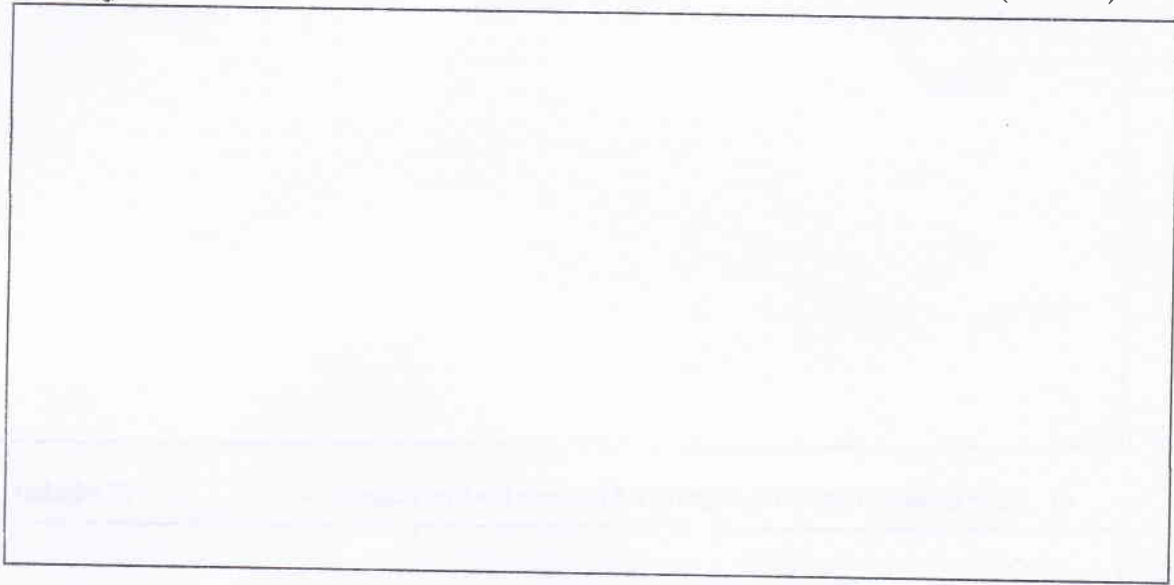


Figure 2 depicts a sample Resource Histogram of a software project. Answer the Question 02 part (b) and (c) using the Resource Histogram depicted in Figure 2.

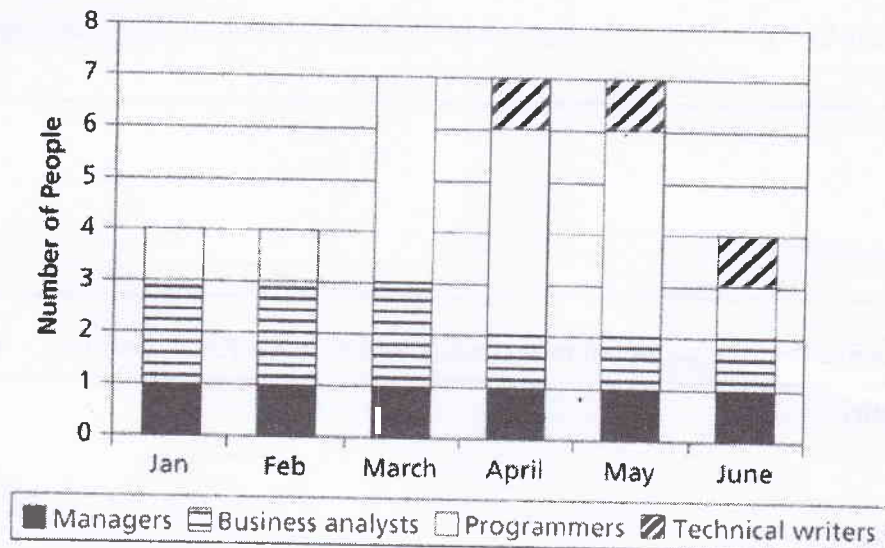


Figure 2 – Resource Histogram

- b) Briefly explain the Project Work Distribution according to the project time line given in the Figure 2 - Resource Histogram. (6 Marks)

- c) State an advantage of assigning a Manager for this project. (2 Marks)

- d) State how priorities might apply when deciding the levels of project monitoring. (3 Marks)

- e) Define the meaning of following quality aspects in a software product. (3 Marks)

**Reliability:**

**Usability:**

**Interoperability:**

- f) Discuss the feasibility and progress monitoring based on the checkpoint marked in the Gantt chart depicted in Figure 3. (4 Marks)

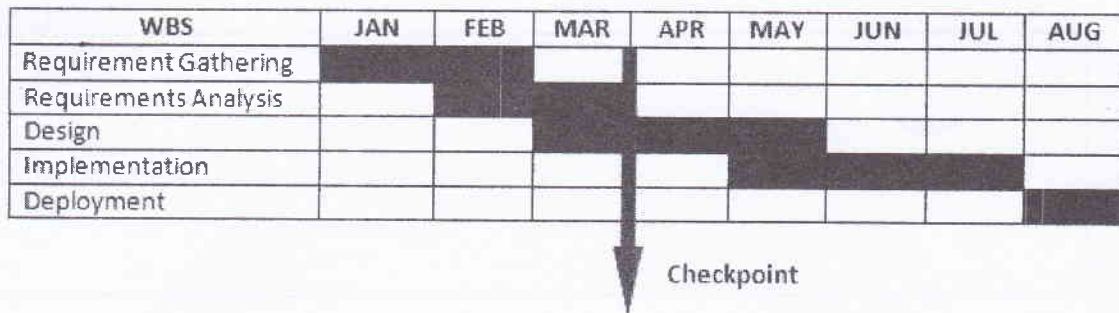


Figure 3 – Gantt Chart

**Feasibility:**

**Progress monitoring:**

- g) Briefly explain how following Thamhain and Wilemon's people influence factors can be applied for a project. (4 Marks)

**Authority:**

**Money:**

**Penalty:**

**Expertise:**

**Question 03**

- a) State the difference between Negative and Positive risks using suitable examples.

(2 Marks)

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- b) Suppose, there is an opportunity which contains a 40% chance of happening in a certain software project work. However, if this positive risk occurs it may help gaining 2,000 US Dollars. Calculate the Expected Monetary Value (EMV) for this risk event. (2 Marks)

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- c) Briefly explain the main purpose of following statements with respect to the Risk Management Process. (4 Marks)

**Risk Identification**

**Risk Assessment**

**Risk Response Development**

**Risk Response Control**



Write the answers for Question 3 part (d) and (e) by analyzing the risk list given in the Table 1

Table 1: Risk List

Risk ID	Description	Probability	Impact
R01	Changing a critical functional requirement	Low	Medium
R02	Insufficient resources for executing two critical activities	Medium	High
R03	Project integration failure due to interface mismatching among components	High	High
R04	Programmer failed to meet documentation standards	High	Low
R05	Breaking the weekly team meetings	Medium	Medium
R06	Changing the government rules on taxes	Low	Medium
R07	Changing the high priority functional requirement as a low priority one	Low	Low
R08	Developing a prototype version of the project	Low	High
R09	Unexpected project scope expansion	Medium	Medium
R10	No proper subject training	Low	High

d) State the reason why it is possible to address R03 risk prior to R07 risk. (1 Mark)

e) Construct a Probability/ Impact Matrix to present the risk list mentioned in Table 1. Note that you can use the Risk ID of each risk item listed in Table 1 to denote the specific risk item within the matrix. (9 Marks)

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- f) Analyze the following case study and construct a suitable Cause-and-Effect Diagram (Fishbone Diagram). (7 Marks)

*Case Study:*

Millennium Software group is assigned to develop a new hardware component for washing machines to automatically regulate the detergent based on the material and level of dirt in the clothes to be washed. They are asked to develop this component using a new hardware programming platform and this is the first time company use this new technology. Hence, they have identified lack of technical knowledge as the major risk item in this project. Further, they have identified factors such as training requirement, people skills, company profile and purchasing as the main causes of the identified risk. Obtaining the expert knowledge, skill assessment methods needed to be considered with respect to the new technology are the major concerns under the training requirement. Development experience and soft skills are the factors that are needed to consider under the people skills.

**Question 04**

- a) State four factors you consider when selecting a correct Project Management methodology. (4 Marks)

- b) Briefly explain following terms with respect to the Scrum Project Management methodology. (4 Marks)

**Scrum Master**

**Product Backlog Item**

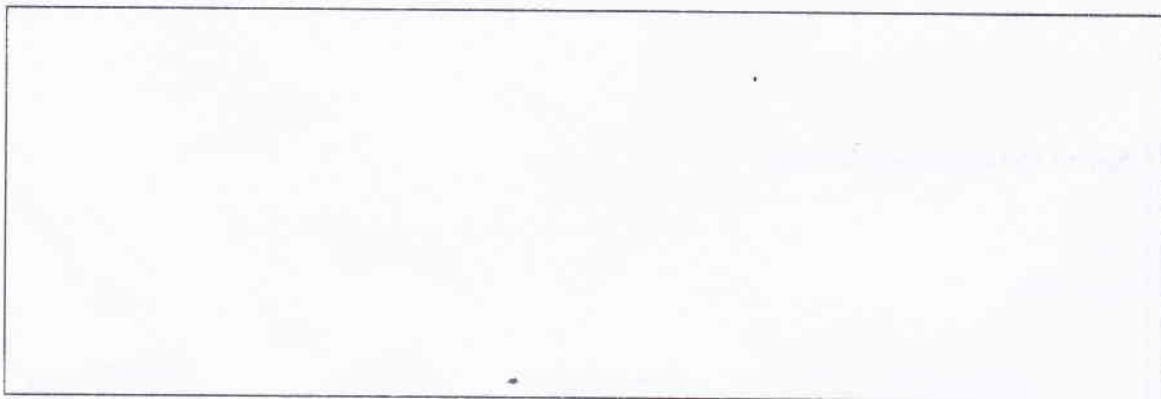
**Scrum Sprint**

**Sprint Retrospective Meeting**

- c) The Scrum team of a certain company has identified 40 story points in their new software project. Depending on the execution environment they have added 25% buffer and one pre-release sprint during the planning stage. Further, they have allocated 2 weeks time per sprint. It has been identified that this team has team velocity value as 14. Find the total number of sprints required to execute this software project and time taken to complete the project according to the Scrum method. (5 Marks)



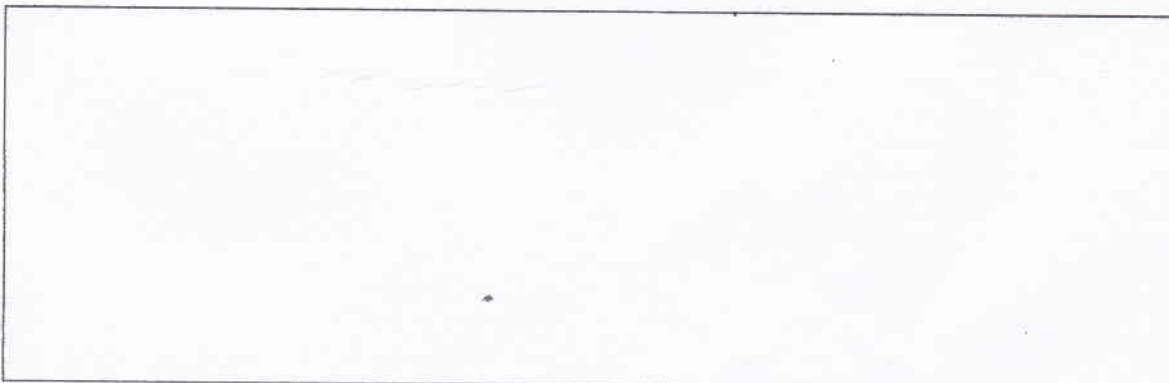
- d) Calculate the project cost mentioned in the Question 4 part (c) if the Dev team is paid Rs. 50000.00 per sprint. (2 Marks)



- e) Briefly explain main phases of Project Cost Management Process. (6 Marks)



- f) Explain the difference between Top-down Cost Estimation and Bottom-up Cost Estimation. (2 Marks)



- g) Calculate the Earned Value Management (EVM) of a project which has Rs. 125000.00 budgeted cost of work scheduled and 85% of rate of team performance. (2 Marks)

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