UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2013/2014 – 2nd Year Examination – Semester 4

IT4204: IT Project Management
Part 2: Structured Question Paper

19th July, 2014
(ONE HOUR)

To be completed by the candidate
BIT Examination Index No: _____

Important Instructions:

- The duration of the paper is **1 (one) hour**.
- The medium of instruction and questions is English.
- This paper has **2 questions** on **07 pages**.
- **Answer all questions.** All questions carry equal marks.
- **Write your answers in English using the space provided in this question paper.**
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the examination hall by a candidate.
- Note that questions appear on both sides of the paper.
  If a page is not printed, please inform the supervisor immediately.
- Non-programmable calculators may be used.

Questions Answered
Indicate by a cross (×), (e.g. ☒) the numbers of the questions answered.

To be completed by the candidate by marking a cross (×).	Question numbers				
	1	2			
To be completed by the examiners:					

(1) Consider the Table 1 below that gives the cash flow projections of four projects A, B, C, and D. These projects are in the same industry.

Year	Project A	Project B	Project C	Project D
0	-100,000	-1,000,000	-100,000	-120,000
1	10,000	400,000	45,000	50,000
2	10,000	400,000	43,000	50,000
3	100,000	400,000	42,000	50,000

Table 1: Cash flow projections for A,B,C and D in Rs. (figures are end of year totals)

(a). Explain the reason for having negative values for the year zero.

[5 marks]

> **ANSWER IN THIS BOX**
>
> **Figures given in Year 0 represent cash outflows. In other words, money spent on projects. Since funds are going out, these figures are given in negative numbers. Funds coming in are represented in postive numbers.**

(b). The caption of the above table states "figures are end of year totals". What is the importance of that statement?

[5 marks]

> **ANSWER IN THIS BOX**
>
> **Stating that the "figures are end of year totals" makes it convienient in discounting the figures. If the figures are spread throughout the year, it is difficult to discount the figures.**

(c). Suppose, the time value of money is zero (discounted rate is zero) and the risk level of all four projects is the same. Among projects A, B and C, which project gives the highest net value ? Justify your answer.

[5 marks]

> **ANSWER IN THIS BOX**
>
> **Project B – 200,000**

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(d). Will you change your answer, if the four projects have significantly different risk levels ? Explain.

[5 marks]

> **ANSWER IN THIS BOX**
>
> **Yes. The risk factor has to be taken into account. The lower the risk, the better.**

(e). Evaluate the four projects using the **Payback period** method and identify the best project to be implemented. **In answering this question, assume that cash inflows are spread throughout the year.**

[5 marks]

> **ANSWER IN THIS BOX**
>
> **Project A :   2 years and 9.6 months**
> **Project B :   2 years and 6 months**
> **Project C :   2 years and 3.43 months**
> **Project D :   2 years and 4.8 months**
>
> **Answer is Project C.**

(f). Evaluate the four projects using the **Return of the Investment** method and identify the best project to be implemented.

[5 marks]

> **ANSWER IN THIS BOX**
>
> **Project A :   20%**
> **Project B :   20%**
> **Project C :   30%**
> **Project D :   25%**
>
> **Answer is Project C.**

(g). Suppose, the average lending rate of banks is 10% and average saving rate is 8%. Additional 1% is given to the saving accounts of senior citizens. The risk level of projects in this sector is 2% above the average lending rate. Calculate suitable discounted rate for the given projects.

[5 marks]

ANSWER IN THIS BOX

Discount Rate = 12.00%

(h). Using the Table 2 given below, calculate the net present value (NPV) of all four projects and identify the best project to be implemented. Assume that the discount rate is 10%.

Year	Discount rate (5)					
	5	**6**	**8**	**10**	**12**	**15**
1	0.9524	0.9434	0.9259	0.9091	0.8929	0.8696
2	0.9070	0.8900	0.8573	0.8264	0.7972	0.7561
3	0.8638	0.8396	0.7938	0.7513	0.7118	0.6575
4	0.8227	0.7921	0.7350	0.6830	0.6355	0.5718
5	0.7835	0.7473	0.6806	0.6209	0.5674	0.4972
6	0.7462	0.7050	0.6302	0.5645	0.5066	0.4323
7	0.7107	0.6651	0.5835	0.5132	0.4523	0.3759
8	0.6768	0.6274	0.5403	0.4665	0.4039	0.3269
9	0.6446	0.5919	0.5002	0.4241	0.3606	0.2843
10	0.6139	0.5584	0.4632	0.3855	0.3220	0.2472

Table 2: NPV Discount Rates

[15 marks]

ANSWER IN THIS BOX

Project A : -7513.15
Project B : -5259.2
Project C : 8001.5
Project D : 4342.6

Answer is Project C.

(2) Suppose you are assigned to manage a project that provides online banking services. Some of the activities you have to undertake are, identifying requirements such as number of computers and specification of the computers, type of the Internet connection and system and application software. It is estimated that these tasks need 4 weeks. The hardware vendor promises to deliver O/S installed computers within 4 weeks. It is estimated that six (6) weeks are needed to obtain the Internet connection and one (1) week is needed to configure and test the Internet connection. Banking software can be obtained from an overseas vendor in a week, and its installation is expected to also take one (1) week. The entire procurement process can be started soon after the requirements are identified. Software installation process takes one (1) week and the process can be started once the software is received from the overseas vendor. The testing of this online system takes 4 weeks. This testing process is carried out by external parties. At the time of starting the testing process, it is also possible to start the staff training session that takes 5 weeks. After the training session, the staff is to do the final testing that takes another week.

(a). Draw the work breakdown table for the above project. (Note: Your table should contain first level tasks, their durations in weeks and their dependencies).

[15 marks]

ANSWER IN THIS BOX

Task	*Precedents*	*Duration*
Requirment gathering (A)	**-**	**4**
Obtaining computers (B)	**A**	**4**
Obtaining Internet (C)	**A**	**6**
Internet connection configuration (D)	**C, B**	**1**
Obtaining software (E)	**A**	**1**
Intsalling software (F)	**E, B, D**	**1**
Testing (G)	**F**	**4**
First training (H)	**F**	**5**
Second training (I)	**H, G**	**1**

(b). (i) Consider the following Work breakdown Table of a project.

Task	Duration (weeks)	Dependencies
A	3	-
B	2	A
C	10	-
D	10	C
E	3	H, B
F	4	-
G	5	A, F
H	6	D, G

Draw an Activity-on-Node network diagram for the above project. Do the forward pass, the backward pass and write the earliest start, earliest finish, latest start, latest finish weeks for each activity. Also mark the critical path on your diagram.

[25 marks]

ANSWER IN THIS BOX
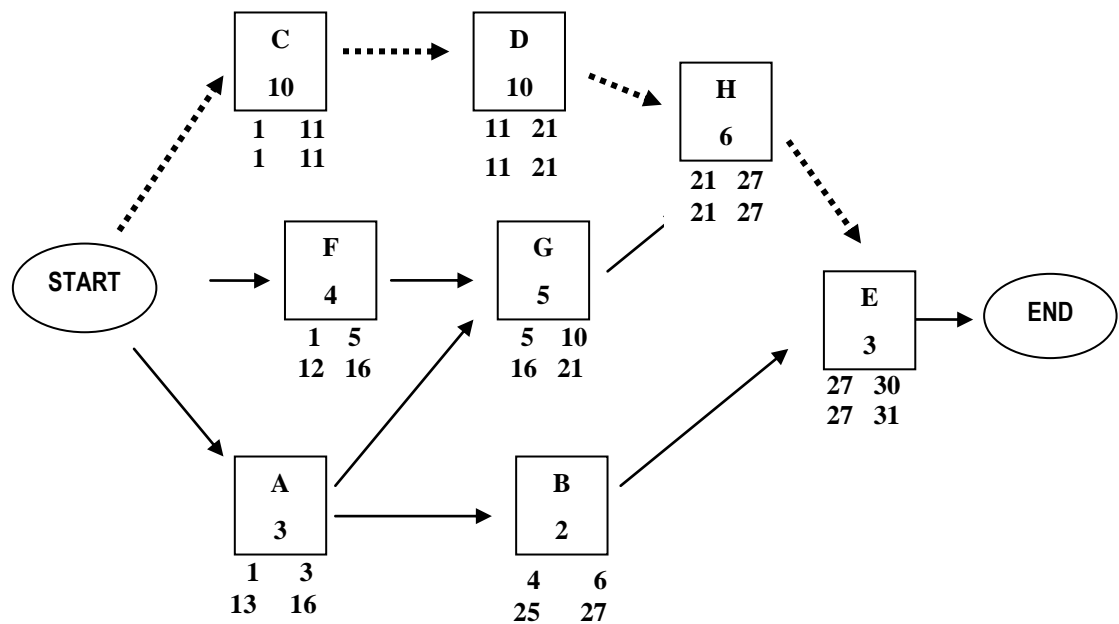
Critical Path : CDHE

(ii) Task C needs ten (10) computers and Task A and F need 5 computers each respectively. How can you reduce the number of computers required by applying resource levelling technique ?

[10 marks]

ANSWER IN THIS BOX

Delay the Task A and F until Task C is finished. Then the 10 computers used for Task C can be given to both Task A and F (5 each).

*** **END** ***