UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

INF3708

May/June 2017

SOFTWARE PROJECT MANAGEMENT

Duration : 2 Hours

90 Marks

EXAMINATION PANEL AS APPOINTED BY THE DEPARTMENT.

Use of a non-programmable pocket calculator is permissible.

Closed book examination.

EXAMINATION PANEL

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Moderator: Mr Molefe Maloma
External Examiner: Mr Marc Lonfo Fotio

INSTRUCTIONS

- This paper consists of 6 pages.
- Non-programmable calculators may be used.
- Show all calculations.
- Round off all your calculations to two decimal places.
- Answer ALL the questions.

GOOD LUCK!!

QUESTION 1 [5]

Write down the question number and the corresponding letter of the correct answer in your examination book. For example: 1. – 2.

1. The advantages of a company running off-the-shelf software include the following except -
    1. The software can be examined and perhaps trialled before acquisition
    2. The software cost per customer could be reduced
    3. The software provides competitive advantage to the organisation.
    4. The software can be more reliable.

2. After the major risks have been identified and allocated priorities, the next step is to decide how to deal with the risks. Which of the following is not one of the ways of dealing with risk?
    1. Risk monitoring
    2. Risk avoidance
    3. Risk acceptance
    4. Risk transfer

3. In allocating individuals to software development tasks, a number of factors need to be taken into account. They are:
    1. Team building, training and risk
    2. Training, risk and time
    3. Availability, criticality and Prioritization
    4. Criticality, training and experience

4. Expenditure that an organisation incurs which cannot be directly related to individual projects or jobs, including interest charges is known as:
    1. Contingence costs
    2. Usage costs
    3. Staff costs
    4. Overheads costs

5. Stake holders are people who have an interest or stake in a project. Which of the following is true of stake holders?
    1. They should be identified as soon as possible
    2. Adequate communication channels should be set up between stakeholders as soon as possible.
    3. All stake holders should have the same objectives
    4. 1, 2 & 3
    5. 1 & 2

QUESTION 2 [12]

2.1 Differentiate between Information Systems and Embedded Systems. Please give one example of each system. (2)

2.2 As a potential project manager, if you are given a software project to manage, outline the steps you will consider for planning of the project. Name also at least two activities within each step. (10)

QUESTION 3 [21]

Table 1 gives the estimated cash flow for three different projects: **Project 1, 2 and 3** (in South Africa Rand R)

Year	Project 1	Project 2	Project 3
0	-R250 000	-R300 000	-R200 000
1	+R25 000	+R25 000	+R40 000
2	+R25 000	+R50 000	+R40 000
3	+R50 000	+R75 000	+R40 000
4	+R50 000	+R50 000	+R40 000
5	+R100 000	+R50 000	+R80 000
6	+R100 000	+R75 000	+R80 000

Table 1: Projects Cash Flow

Based on the information provided in Table 1 answer questions 3.1 to 3.6 below:

3.1 Explain “a net profit” and calculate the net profit for the three projects. (6)

3.2 What is Return on Investment (ROI)? Using the information on Table 1 calculate the ROI for the three projects. (6)

3.3 In project management term, how would you explain a payback period? Calculate the payback period for each of the three projects in Table 1 (6)

3.4 Based on your answer in question 3.1; which one of the three projects would you consider developing and why? (1)

3.5 Using the result of the ROI you obtained in question 3.2; indicate which of the three projects would you recommend and give reasons. (1)

3.6 The projects payback periods were calculated in question 3.3. Based on your calculations; which project would you select for development? Please justify your answer. (1)

QUESTION 4 [16]

4.1 Given a discount rate of 8% in Table 2 below; calculate the Net Present Value (NPV) for each project in Table 1 above. Please show all your caculations (15)

Year	8% Discount rate
1	0.9259
2	0.8573
3	0.7938
4	0.7350
5	0.6806
6	0.6302

Table 2: 8% discount rate

4.2 Which project would you select for development after your calculation of each project Net Present Value (NPV)? (1)

QUESTION 5 [10]

5.1 ABC is a software development company that assists business in different software development. You have been recently appointed as junior software project manager in the company. Your direct manager mandated you to explain to a new client company (namely Something - Sweety) at least **four different models/approaches of software development that you would consider** when developing their software. Include in your explanation the advantages and disadvantages of the models. (6)

5.2 Something Sweety is a small start-up company that buys and sells sweet in large quantity. Due to their limited resources (finances) the company has decided to introduce a new computer based inventory management system that will enable them to operate with few staff members but work efficiently in order to make profit. The company is uncertain on what to expect since this would be their first software development project. As a result, the company wants to be involved and communicate constantly in the development process of their software and at the same time learn in the process.

What software development model would you best recommend for Something Sweety and why? (4)

QUESTION 6 [16]

Consider the following activities with their precedents and durations listed in Table 3.

Activity	Duration	Predecessor
A	1	__
B	4	A
C	1	A
D	1	B
E	2	C
F	2	C
G	1	D
H	1	E
I	2	G
J	7	G
K	4	F, H
L	2	I,J,K

Table 3: Activity precedents and their durations

6.1 Draw a complete Activity-on-node network diagram. Include the event number, earliest date, latest date and slack on each node by completing both a forward and backward pass. (11)

6.2 Clearly indicate the critical path and its total duration. (1)

6.3 List all the remaining paths with their total durations. (4)

QUESTION 7 [9]

In the PERT network illustrated in figure 1 below, the targeted date for the completion of the project is 15 weeks.

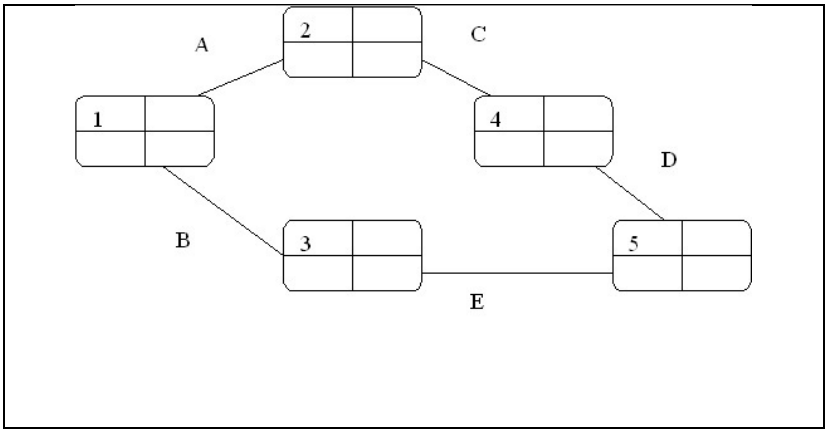

Figure 1

	Optimistic (a)	Most likely (M)	Pessismistic (b)	Expected (t_e)	Standard deviation (s)
A	4	6	8		
B	1	4	5		
C	2	3	5		
D	2	5	6		
E	3	4	5		

Table 4

Using Table 4 and Figure 1 above answer the following questions:

7.1 Calculate the expected (t_e) values and Standard deviation (s) as in Table 4. (5)

7.2 Show the expected (t_e) and standard deviation (s) as in Figure 1 (4)