UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

INF3708

October/November 2016

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
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INSTRUCTIONS

- This paper consists of 5 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. Projects must be evaluated on the following grounds:
    1. Strategic, and technical grounds
    2. Strategic, political and economical grounds
    3. Strategic, technical and economical grounds
    4. Strategic and technical and cultural grounds

2. The prototyping model of software development is _____.
    1. A reasonable approach when requirements are well defined
    2. A risky model that rarely produces a meaningful product
    3. A useful approach when a customer cannot define requirements clearly
    4. All of the above

3. Given the importance of coordinating the efforts of stakeholders, the recommended practice is for a _____ to be created at the start of a project.
    1. Communication mandate
    2. Communication plan
    3. Communication management
    4. Communication initiatives

4. The controlling activity of management include:
    1. Checking on progress regularly
    2. Giving instructions and mandates
    3. Making decisions on what to do
    4. Taking actions to remedy hold-ups

5. When managing stakeholders, which of the following is not an essential activity for project leader.
    1. Categorizing stakeholders as internet or external
    2. Identifying the objectives of stakeholders
    3. Reconciling the different stakeholder interests
    4. None of the above

QUESTION 2 [8]

General project management has many similarities with software project management. However software projects have certain inherent characteristics which make them particularly difficult and different from general projects. Name and discuss the four characteristics that are unique to software projects (8)

QUESTION 3 [24]

Table 1 gives the estimated cash flow for three different projects (in South Africa Rand R)

Year	Project 1	Project 2	Project 3
0	-R195 000	-R160 000	-R295 000
1	+R15 000	+R15 000	+R30 000
2	+R30 000	+R15 000	+R35 000
3	+R55 000	+R20 000	+R50 000
4	+R50 000	+R35 000	+R120 000
5	+R55 000	+R55 000	+R110 000
6	+R50 000	+R90 000	+R115 000

Table 1: Projects Cash Flow

Based on the information provided in Table 1 calculate the following:

3.1 The net profit for the three projects. (6)

3.2 The return on Investment (ROI). (6)

3.3 The payback period for each of the three projects (6)

3.4 Based on your answer to question 3.1, which project would you select to develop and why? (2)

3.5 Based on your calculation of the ROI in question 3.2, identify which project you will select and why? (2)

3.6 Using the payback method calculated in question 3.3, which project would you select to develop? Justify your answer (2)

QUESTION 4 [17]

4.1 Assume a discount rate of 12%, in Table 2 below; calculate the Net Present Value (NPV) for each project in Table 1 of question 3. (15)

Year	12% discount rate
1	0.8929
2	0.7972
3	0.7118
4	0.6355
5	0.5674
6	0.5066

Table 2: 12% discount rate

4.2 Which project would you select for development after your calculation of each project Net Present Value (NPV)? (2)

QUESTION 5 [16]

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

Activity	Precedents	Estimated duration (days)
A	None	34
B	A	20
C	A	15
D	C	25
E	B	12
F	D,E	7
G	D,E	6
H	F	30
I	G	28
J	I,H	6

Table 3: Activity precedents and their durations

5.1 Draw a complete Activity-on-arrow network diagram. Include the event number, earliest date, latest date and slack on each node by completing both a forward and backward pass. (10)

5.2 Clearly indicate the critical path and its total duration (2)

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

QUESTION 6 [20]

In the PERT network illustrated in the figure below, the targeted date for the completion of the project is nine (9) weeks.

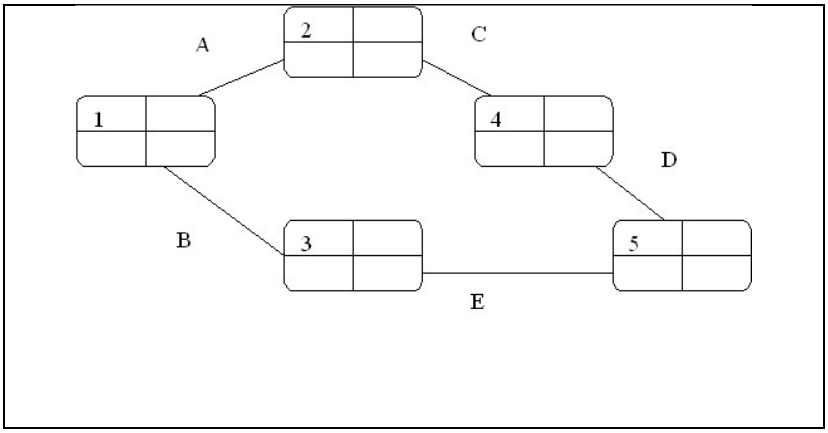

Figure 1

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

Table 4

Using the above table calculate:

6.1 Calculate the expected (t_e) values and standard deviation (s) as in Table 4. (10)

6.2 Show the expected (t_e) and standard deviation (s) as in Figure 1 (10)