AFRICA UNIVERSITY
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"Investing in Africa's future"

COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE (CBPLG)

NCIS 212: SOFTWARE ENGINEERING

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2021

LECTURER: DR. YOGESH AWASTHI

DURATION: 5 HOURS

INSTRUCTIONS

Answer any five questions

Start each question on a new page

The marks allocated to **each** question are shown at the end of the section.

Q1. What are the risks associated with the development of software products? Assume that you are developing a software application for a bank (ABC). What are the major risk factors associated with the application and how will you mitigate those risks? **(20 marks)**

Q2. Write a set of functional and non-functional requirements for e-education system, setting out its expected learning outcomes.

Q3. Mention the important phases of spiral model of software development. Compare the relative merits and demerits of spiral model with the prototype model. **(20 marks)**

Q4. Is software a product or a process? Which one do you think is more relevant, the product or process. Justify your answer with the aid of suitable examples.

(20 marks)

Q5. What is the importance of metric function count in software engineering? Compute the function point value for a project with the following information domain characteristics:

Number of user inputs=50

Number of user outputs=44

Number of user enquiries=18

Number of internal logic files=30

Number of external interface files=16

Assume that all weighting factors are average and all complexity adjustment factor are essential. **(20 marks)**

Q6. Consider a project to develop a full screen editor. The major components identified and their sizes are:

(i) Screen Edit – 8K

(ii) Command Lang Interpreter – 4K

(iii) File Input and Output – 3K

(iv) Cursor movement – 4K

(v) Screen Movement – 6K.

Assume the Required software reliability is low, product complexity is low, analyst capability is high & programming language experience is high. Use COCOMO model to estimate cost and time for different phases.

Cost Drivers	Very Low	Low	Nominal	High	Very High	Extra High
RELY	0.75	0.88	1.00	1.15	1.40	--
CPLX	0.70	0.85	1.00	1.15	1.30	1.65
ACAP	1.46	1.19	1.00	0.86	0.71	
LEXP	1.14	1.07	1.00	0.95	--	--

(20 marks)

END OF EXAMINATION