INTE 326 SOFTWARE ENGINEERING

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KABARAK UNIVERSITY

UNIVERSITY EXAMINATIONS

SUPPLEMENTARY EXAMINATION 2024

EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN COMPUTER SCIENCE/BSC-IT/BBIT/BMIT/BSCF

INTE 326: SOFTWARE ENGINEERING

STREAM: Y3S2

TIME:

EXAMINATION SESSION : OCT/NOV 2024

DATE: 2024

INSTRUCTIONS TO CANDIDATES

1. **Answer Question 1 and any other two questions in the answer booklet provided.**
2. **Do not write on your question papers. All rough work should be done in your answer booklet.**

3. **Clearly indicate which question you are answering.**
4. **Write neatly and legibly.**
5. **Follow all the instructions in the answer booklet**

SECTION A: (COMPULSORY) TOTAL MARKS FOR THIS SECTION IS 30.

1.

(a) Explain the empirical estimation model describing the structure of the formula for estimating the effort **[4 marks]**

(b) How do we evaluate a design method with respect to its ability to define an effective modular system(Explain any four criteria) **[4 marks]**

(c) Let *C(x)* be a function that defines the perceived complexity of a problem x and *E(x)* be a function that that defines the effort required to solve a problem *x*. If p_1 and p_2 two problems to be solved show that it is easier to solve a problem when you break it into manageable pieces **[4 marks]**

(d) Describe the linear sequential model of software development. What are some of its advantages and disadvantages? **[4 marks]**

(e) Explain three things that the software architecture define? **[6 marks]**

(f) “Successful software systems are condemned to change over time”. Justify the importance of this statement **[3 marks]**

(g) Explain the Boehm’s organizing principle of developing simple plans for any project in project management **[5 marks]**

SECTION B. TOTAL MARKS FOR THIS SECTION IS 40. ANSWER ANY TWO QUESTIONS FROM THIS SECTION. EACH QUESTION IN THIS SECTION CARRIES 20 MARKS.

2.

(a) If the customers and the software engineers have an unconscious “us and them” mind-set, what is an appropriate elicitation method to deal with this problem? Justify **[4 marks]**

(b) What is the difference between Function pointer (FP) and Line of Code (LOC)? { **[2 marks]**

(c) Explain spiral model in software development cycle. What is its strength and when is it necessary to use it. **[5 marks]**

(d) List four software characteristic of a function point as a means of project estimation effort **[4 marks]**

(e) Explain prototype model in software development cycle. What is its strength and when is it necessary to use it. **[5 marks]**

3.

(a) Explain risk referent point and when this point is determined? **[3 marks]**

(b) Explain risk projection using an example of a risk table. **[5 marks]**

(c) As a team of engineers you are required to develop an automated system of the university to replace the manual system. Explain the steps used in transition to the new system. **[6 marks]**

(d) Explain with examples the three categories of risks **[6 marks]**

4.

(a) What is software engineering? Explain the difference between software and hardware product life using the respective curves **[4 marks]**

(b) What is program comprehension? How is it a challenge in maintenance? **[3 marks]**

(c) Explain any three best practices that can be adopted by a project manager to avoid common problems of a project **[3 marks]**

(d) What is CASE? How do organizations use CASE tools in development **[4 marks]**

(e) What is the difference in terms of evolution of products in prototype and incremental models **[2 marks]**

(f) List four characteristics of specifying a resource in project planning **[4 marks]**

5.

(a) Describe the incremental model of software development. What are some of its advantages and disadvantages? **[5 marks]**

(b) What does the introduction part of the SRS document explain? **[5 marks]**

(c) "Successful software systems are condemned to change over time". Justify the importance of this statement **[3 marks]**

(d) Show how to develop a risk table with an example of a system **[5 marks]**

(e) Explain the empirical estimation model describing the structure of the formula for estimating the effort **[4 marks]**