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A Dynamic Centre of Academic Excellence

SCHOOL OF PROFESSIONAL STUDIES

BACHELOR OF BUSINESS INFORMATION TECHNOLOGY/ BACHELOR OF INFORMATION COMMUNICATION TECHNOLOGY

UNIT CODE/NAME: BBIT 313/BCT 414: SOFTWARE ENGINEERING

January-April 2021/2022 Special Exam

- Time: 2 Hours

Instructions: Answer Question ONE (Compulsory) and any other TWO questions.

QUESTION ONE

- a) A large software house has been asked to supply a computerized solution for a business. The project manager has drawn up a list of activities and their likely duration.

Activity	Description	Predecessor	Weeks to complete
A	Write project specification	None	5
B	Produce program design	A	5
C	Write module code	B	15
D	Module Testing	C	10
E	Integration testing	D	5
F	Alpha testing	E	3
G	Install software and acceptance testing	F, E	5
H	Write end user testing guide	G	5
J	Write technical documentation	J	10
K	End user training	G	4
L	Sign off final system	K	1

The project manager decides to construct a Program Evaluation Review Technique (PERT) chart from this data.

- Implement a network diagram that can help the project manager
(5 Marks)
- Evaluate the project duration
(2 Marks)

- iii. Determine the Critical path (2 Marks)
 - iv. Identify the critical activities in the project (2 Marks)
- b) Differentiate between (2 Marks)
 - a. S – type and E – type software (2 Marks)
 - b. Usability and Reusability (2 Marks)
 - c. Interoperability and adaptability (4 Marks)
- c) Explain the need of having a project scope
- d) Software maintenance costs are influenced by a number of technical and non-technical factors. Some of the factors are: module independence, programming style, documentation, staff stability, hardware stability, and software age. Which of the above factors is a software engineer able to control when developing new software? For each of these 'controllable' factors, explain how a software engineer would attempt to minimize future maintenance costs. (6 Marks)
- e) Entity Relationship diagram is one of the tools used in Analysis and Design of a software system. Briefly explain how cardinalities are mapped to define associations between two entities. (3 Marks)

QUESTION TWO

- a) Software project management is very important. Explain THREE reasons for the importance of software project management (6 Marks)
- b) Discuss and evaluate the Work Breakthrough Structure (WBS) as a method of Time estimation in Software Development (4 Marks)
- c) Describe the following:
 - (i) Software maintenance (1 Mark)
 - (ii) Project scheduling (1 Mark)
- d) Explain the size oriented and functional oriented metrics in context of software development productivity estimation (3 Marks)
- e) Explain the COCOMO model (2 Marks)

QUESTION THREE

- a) Explain how a software project manager would estimate and measure the software development productivity of a team. (6 Marks)
- b) Discuss TWO aspects of the requirements engineering process and assess their usefulness in capturing, specifying, and communicating requirements throughout the software lifecycle. (8 Marks)
- c) Describe a Difficulty encountered in requirements Elicitation (1 Mark)

QUESTION FOUR

- a) Describe the four main stages of requirement engineering process and state deliverable under each of the phase (4 Marks)

- b) Software design deals with bringing the ideological concept of a software into life. (6 Marks)
Briefly discuss THREE levels of system design (3 Marks)
- c) What is the Objective of Architectural Design? (2 Marks)
- d) Describe any FOUR CASE building blocks

QUESTION FIVE

- a) Differentiate the following concepts in system design (2 Marks)
 - i. Cohesion and Coupling (2 Marks)
 - ii. Encapsulation and Inheritance (4 Marks)
- b) Briefly describe FOUR user Interface golden rules
- c) Briefly discuss the documents a well maintained documentation should involve (7 Marks)

QUESTION THREE

- a) Name and describe FIVE main form factors to motherboards. (5 Marks)
- b) Name and describe FIVE processor features affect performance and compatibility with motherboards. (5 Marks)
- c) Describe the term Troubleshooting as used in computing (1 Mark)
- d) Distinguish between multi – tasking and multi – processing as used in processors (2 Marks)

QUESTION FOUR

- a) Briefly describe the main steps of installing an operating system to a computer's system (6 Marks)
- b) Explain the difference between system software and application software (4 Marks)
- c) Briefly describe the following electrical measurements as used in computers (1 Mark each)

- i. Amps
- ii. Ohms
- iii. Volts
- iv. Watts
- v. Continuity

QUESTION FIVE

- a) briefly describe the following components found in a computer's motherboard (4 Marks)
 - i. Resistor
 - ii. Capacitor
 - iii. Diode
 - iv. Transistor
- d) Briefly explain the following diagnostic tools included as part of the operating system (2 Marks each)
 - i. BIOS POST
 - ii. DEFRAG.EXE
 - iii. MSD.EXE
 - iv. SCANDISK.EXE
 - v. SYSEDIT.EXE
- e) Describe the protocol that is used to automatically set up the IP address configuration of network PC (1 Mark)