



THE STATE UNIVERSITY OF ZANZIBAR
SCHOOL OF COMPUTING COMMUNICATION AND MEDIA STUDIES
DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
FINAL EXAM - 2023/2024
IS DEVELOPMENT FRAMEWORKS AND METHODS
INF 2108

Date: 02/08/2024

Time: 02:00 PM – 04:30PM

INSTRUCTIONS

1. This paper consists of **TWO** sections, A and B.
2. Answer all questions from section A, and any TWO questions from section B.
3. Cellular phones and any other unauthorized materials are NOT allowed in the examination room.
4. Answer each question on separate sheet
5. This exam consists of three (3) printed pages, including cover page

Answer all questions from this section

Question 1 (10 Marks)

- a) Discuss fundamental problems of system development (2Marks)
(1Marks)
- b) List four agile flavors (2Marks)
- c) Why agile is good compared to other traditional methodologies (2Marks)
- d) What is the function of the first kick-off meeting? (2Marks)
- e) What is project Backlog? (3Marks)

Question 2

- a) What is cloud computing? (2Marks)
- b) Describe five (5) characteristics of cloud computing that makes it better than on-premises deployment. (3Marks)
- c) Describe three (3) types of deployment models. (2Marks)
- d) Differentiate between IAAS, PAAS and SaaS service models. Use sample case as an example (3Marks)

Answer any two questions.

Question 3: Bus Garage Repairs (10 Marks)

Buses come to a garage for repairs. A mechanic and helper perform the repair, record the reason for the repair and record the total cost of all parts used on a Shop Repair Order. Information on labor, parts and repair outcome is used for billing by the Accounting Department, parts monitoring by the inventory management computer system and a performance review by the supervisor. Note: Do not forget to document your assumptions, if you make any.

- i. Use Bus Garage Repairs case study to draw DFD level 0 diagram (5 Marks)
- ii. Extend the question above to DFD level 1 diagrams (5 Marks)

Question 4 (10 Marks)

- a) What are advantages of Object Role Modeling (ORM) over UML modeling? (4 Marks)
- b) Explain four types of uniqueness constraints available in Object Role Modeling (ORM) (3 Marks).
- c) Use ORM notation diagram to show the representation of B and C to be mutually exclusive in ORM, i.e. $B \cap C = \{ \}$ (3 Marks).

Question 5: Heating System case study (10 Marks)

The Home Owner turns the power on. Each room is temperature checked. If a room is below the desired temperature the valve for the room is opened, the water pump started. If the water temp falls below threshold, the fuel valve is opened, and the burner ignited. If the temperature in all rooms is above the desired temperature, no actions are taken.

Note: Do not forget to document your assumptions, if you make any.

Required:

- i. Draw Use Case Diagram for Heating system case study.