

BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE AND ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE
BSc HONS DEGREE IN SOFTWARE ENGINEERING
SWE202: SOFTWARE ARCHITECTURE AND DESIGN

2 HOURS 30 MINUTES

NOV 2024

INSTRUCTIONS FOR CANDIDATES

Answer **all** questions

Total marks: 100

Question 1

- a. Explain the following software engineering terms
 - i. Software architecture [2]
 - ii. High availability [2]
 - iii. DRY principle [2]
- b. Explain any two creational software design patterns. [4]
- c. Using a programming language of your choice, give an example of a facade software design pattern. [6]
- d. Describe any four benefits that come from test driven software development. [4]

Question 2

Illustrate the following software design principles

- a. Design for flexibility [4]
- b. Anticipate obsolescence [4]
- c. Design for portability [4]
- d. Design for testability [4]
- e. Design defensively [4]

Question 3

Explain the importance the following software quality attributes in the field of software engineering

- a. Performance [4]
- b. Interoperability [4]
- c. Usability [4]
- d. Reliability [4]
- e. Modifiability [4]

Question 4

With the aid of diagrams where applicable, describe the following software architecture styles

- a. Client-server pattern [5]
- b. Model-view pattern [5]
- c. Pipe-filter pattern [5]
- d. Peer-to-peer pattern [5]

Question 5

Describe the purpose of the software reconstruction stages below

- a. Inventory Analysis [4]
- b. Document reconstructing [4]
- c. Reverse Engineering [4]
- d. Code Reconstruction [4]
- e. Data Reconstruction [4]

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