



TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:

BSSC /SEPT 2021/J-FT , BSCS/ SEPT 2020/J-FT

CCS 4401: ENTERPRISE APPLICATION DEVELOPMENT

END OF SEMESTER EXAMINATION

SERIES: DECEMBER

TIME:2HOURS

DATE:Pick DateDec2024

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE (30 Marks)

- a) What is the difference between a container and component in J2EE architecture? [4 Marks]
- b) What are the differences between Inversion of Control and Dependency Injection? [4 Marks]
- c) Discuss any three OO Design Principles [6 marks]
- d) Explain any 4 Spring Annotations and their use [4 marks]
- e) State and explain the three pieces or components of MVC pattern [6 marks]
- f) Briefly Explain features of Java Enterprise Beans [6 Marks]

QUESTION TWO (20 MARKS)

- a) Briefly explain the three methods of Dependency Injection in Enterprise Application. Give Examples [6 Marks]
- b) Discuss any five Spring Core key Features [10 Marks]
- c) Explain the key concepts of Aspect Oriented Programming [4 Marks]

QUESTION THREE (20 MARKS)

- a) What is SOA
- b) Explain the SOA design concepts
- c) State the benefits of SOA
- d) Define the following
 - i. SOAP
 - ii. XML
 - iii. Web service

QUESTION FOUR (20 MARKS)

- a) What is JSP? [2 Marks]
- b) State four benefits of JSP [8 Marks]
- c) What is a java servlet? [2 Marks]
- d) Explain unit Testing in Java. Give examples of Tools used for unit Testing [4 Marks]
- e) Explain any 2 key Features of Java Persistence API. [4 Marks]

QUESTION FIVE (20 MARKS)

- a) Define state tools and technologies used at different layers of MVC [6 marks]
- b) State and explain services provided by enterprise Java Bean (EJB) container [10 marks]
- c) State any four functions of Java servlet [4 marks]