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ND—06—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (CS) (Second Year) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/Revised Pattern)

COMPUTER SCIENCE

Paper-BCS-404(B)

(Essentials of Computer Security)

(Thursday, 30-11-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions carry equal marks.

(*ii*) Figures to the right indicate full marks.

1. Attempt any *five* of the following : 15

(*a*) Explain database management system.

(*b*) What do you mean by public key encryption structure.

(*c*) Explain the characteristics of good password.

(*d*) What is database security ?

(*e*) What do you mean by attack on system ?

(*f*) Explain concept of encryption and decryption.

(*g*) Explain the concept of subject in access control principles.

P.T.O.

2. Attempt any *three* of the following : 15

(*a*) Explain in detail concept of cryptography.

(*b*) List *three* approaches to message authentication.

(*c*) Explain authentication architecture model in detail.

(*d*) Discuss offline dictionary attack in detail.

(*e*) Explain Unix password scheme in detail.

3. Attempt any *three* of the following : 15

(*a*) Explain relational data model with example.

(*b*) Explain skill levels of intruders.

(*c*) Explain concept of confidentiality in detail.

(*d*) Discuss security policy in detail.

(*e*) Explain concept of masquerade.

4. Attempt any *three* of the following : 15

(*a*) What are the *two* general approaches for attacking symmetric encryption scheme ?

(*b*) What are the different practical security issues ?

(*c*) Distinguish among subjects, objects and access rights.

(*d*) Explain the concept of data integrity.

(*e*) Explain role based access control.

5. Write short notes on any *three* of the following : 15

(*a*) Plain Text

(*b*) Intruders

(*c*) Availability

(*d*) Data integrity

(*e*) Categories of vulnerabilities.

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ND—05—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (Second Year) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/Revised Pattern)

COMPUTER SCIENCE

(Principle of Compiler Design)

(Thursday, 30-11-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Assume suitable data, if required.

(*iv*) Use of any electronic media such as mobile phone, digital diary and electronic calculator is not permitted.

1. Attempt any *five* of the following (**3** marks each) : 15

(*a*) Explain need of translator in detail.

(*b*) Define programming languages.

(*c*) Explain regular expression.

P.T.O.

(*d*) Explain errors in compiler designing.

(*e*) Explain data elements.

(*f*) Explain semantic errors.

(*g*) Explain context free grammar.

2. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain lexical and syntactic structure of language.

(*b*) Describe different data structures used in compiler designing.

(*c*) Explain capabilities of context free grammar.

(*d*) Explain minimization of number of states of DFA.

(*e*) Explain operator precedence parsing.

3. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain implementation of syntax directed translator.

(*b*) Describe sources of optimization.

(*c*) Explain phases of compiler.

(*d*) Explain one pass and multi pass compiler.

(*e*) Explain predictive parsers.

4. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain lexical and syntactic structure of language.

(*b*) Explain predictive parsers and LR parsers.

(*c*) Explain evaluation of postfix notation.

(*d*) Explain conversion of regular expression to finite automata.

(*e*) Explain role of lexical analyzer and input buffering.

5. Write short notes on any *three* of the following (**5** marks each) : 15

(*a*) Bootstrapping

(*b*) Parse tree and syntax tree

(*c*) Finite automata

(*d*) Operator precedence parsing

(*e*) Syntactic phase errors.

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ND—13—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (CS) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/Revised Pattern)

COMPUTER SCIENCE

Paper-AF-18

(Programming in Java)

(Saturday, 2-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Assume suitable data, if required.

(*iv*) Use of any electronic media such as mobile phone, digital diary and electronic calculator is not permitted.

1. Attempt any *five* of the following (**3** marks each) : 15

(*a*) Explain final variables in Java.

(*b*) Explain 'this' keyword in detail.

(*c*) Explain Java operators in detail.

(*d*) Explain finally clause in detail.

P.T.O.

(*e*) Explain String Buffer class in detail.

(*f*) Explain constructor overloading in detail.

(*g*) Explain Inner class in detail.

2. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain architecture of JVM in detail.

(*b*) Explain visibility controls in Java

(*c*) Explain inheritance and its types in detail.

(*d*) Explain string class and its methods.

(*e*) Explain exception handling using try and catch blocks.

3. Attempt any *three* of the following (**5** marks each) : 15

(*a*) What is package ? Explain creating and accessing packages in Java.

(*b*) Explain final method and final class.

(*c*) Explain byte stream classes with a example.

(*d*) Explain architecture of JDBC with diagram.

(*e*) Explain statement and prepared statement in detail.

4. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain ResultSet and ResultSetMetaData in detail.

(*b*) Explain JDBC drivers and its types.

(*c*) Explain character stream classes in detail.

(*d*) What is Interface ? Explain defining and implementing interface.

(*e*) Write a program to demonstrate method overriding.

5. Attempt any *three* of the following (**5** marks each) : 15

(*a*) What is serialization ? Explain the process of serialization.

(*b*) Explain creating user defined exceptions.

(*c*) Explain the use of super keyword with example.

(*d*) Write a program to establish a communication with database using JDBC.

(*e*) Explain creating files and directories with example.

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ND—20—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (CS) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/Revised Pattern)

SOFTWARE ENGINEERING

(Tuesday, 5-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Assume suitable data, if required.

(*iv*) Use of any electronic media such as mobile phone, digital diary and electronic calculator is not permitted.

1. Attempt any *five* of the following (**3** marks each) : 15

(*a*) Explain software crises.

(*b*) Explain any *three* characteristics of software.

(*c*) Explain software engineering.

P.T.O.

(*d*) Explain TSP.

(*e*) Explain Agility.

(*f*) Explain planning practices.

(*g*) Explain computer based system.

2. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain in detail software evolution.

(*b*) Explain in detail software myths.

(*c*) Explain in detail incremental process model.

(*d*) Explain in detail agile process models.

(*e*) Explain in detail the essence of practice.

3. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain in detail personal and team process model.

(*b*) Explain in detail Spiral Model.

(*c*) Explain in detail the evolving role of software.

(*d*) Explain in detail software engineering layered technology.

(*e*) Explain in detail feature driven development.

4. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain in detail PSP.

(*b*) Difference between PSP and TSP.

(*c*) Explain in detail Waterfall Model.

(*d*) Explain in detail software process.

(*e*) Explain in detail system engineering hierarchy.

5. Write short notes on any *three* of the following (**5** marks each) : 15

(*a*) Software simulation

(*b*) Product and Process

(*c*) Process Framework

(*d*) Software Horizon

(*e*) System Modeling.