This question paper contains **2** printed pages]

GF—08—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2023

(CBCS/Revised Pattern)

COMPUTER SCIENCE

Paper BCS-404-B

(Essentials of Computer Security)

(Thursday, 20-4-2023)   **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 concept of security.

    (*b*)   What do you mean by public key ?

    (*c*)   Explain the strategies for selecting good password.

    (*d*)   Explain the need of database security.

    (*e*)   What do you mean by threat ?

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

    (*g*)   Explain access control principles.

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

    (*a*)   Explain in detail concept of symmetric encryption.

    (*b*)   Explain model for electronic user authentication.

    (*c*)   Explain public key encryption structure.

    (*d*)   Explain analysis approaches for intrusion detection.

    (*e*)   Explain necessity of database encryption.

                                                  P.T.O.

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

   (*a*) Explain characteristics used in biometric application.

   (*b*) Discuss various challenges in computer security.

   (*c*) What are the characteristics of good password ?

   (*d*) Explain concept of assets.

   (*e*) Explain general model for access control.

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

   (*a*) Explain the scope of computer security.

   (*b*) Explain the concept of Data Integrity.

   (*c*) Explain procedure to create digital envelope.

   (*d*) Explain concept of Anamoly detection in detail.

   (*e*) Explain Target Acquisition and Information Gathering.

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

   (*a*) Cipher text

   (*b*) Cyber criminals

   (*c*) Offline dictionary attack

   (*d*) Confidentiality

   (*e*) Relational Database.

This question paper contains **2** printed pages]

GF—07—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2023

(CBCS/Revised Pattern)

COMPUTER SCIENCE

Paper AF-08

(Principle of Compiler Design)

(Saturday, 20-4-2023)   **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.

(*d*)   Explain errors in compiler designing.

(*e*)   Explain data elements.

(*f*)   Explain semantic errors.

(*g*)   Explain context free grammar.

P.T.O.

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

   (*a*) Write a note on Bootstrapping.

   (*b*) Write a note on parse tree and syntax tree.

   (*c*) Write a note on finite automata.

   (*d*) Write a note on operator precedence parsing.

   (*e*) Write a note on syntactic phase errors.

GF—16—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2023

(CBCS/Revised Pattern)

COMPUTER SCIENCE

Paper AF-18

(Programming in Java)

(Monday, 24-4-2023)   **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 how java differ from C and C++.

  (b)   Explain Java operators with example.

  (c)   Explain use of 'this' keyword.

  (d)   Explain applet tags.

  (e)   Explain method overriding with example.

  (f)   Explain super method overriding.

  (g)   Explain JVM.

P.T.O.

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

   (*a*) Explain Java programming structure with example.

   (*b*) Explain Java features.

   (*c*) Explain abstract class with example.

   (*d*) What is package ? How do you create and access package ?

   (*e*) Explain types of streams.

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

   (*a*) Explain final method and final class in brief.

   (*b*) Explain data types in Java.

   (*c*) What is inheritance ? Discuss types of inheritance.

   (*d*) How do you define your own exception ? Explain with suitable example.

   (*e*) Explain how to create user defined exception.

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

   (*a*) Explain Stream Classes in Java.

   (*b*) How do you define Class, Method and Objects ?

   (*c*) Explain static members in Java.

   (*d*) Explain architecture of JDBC.

   (*e*) What is interface ? How do you define and implement interface ?

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

   (*a*) Visibility control in Java

   (*b*) Exception handling mechanism

   (*c*) Finally clause

   (*d*) Serialization and Deserialization

   (*e*) Branching Statements in Java with example.

This question paper contains **3** printed pages]

GF—25—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

APRIL/MAY, 2023

(CBCS/Revised Pattern)

COMPUTER SCIENCE

(Software Engineering)

(Wednesday, 26-4-2023)　　　　　　　　　　　　　　　**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 different Software Applications.

　(*b*)　Explain Software : A Crisis on the Horizon.

　(*c*)　What is Software Engineering ?

　(*d*)　What is Product and Process ?

P.T.O.

770BBA2DEF2615A2C707608A6929023A

(e) Explain what is agility ? Explain it.

(f) What are different principles of software engineering ?

(g) Define the elements of computer based system.

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

(a) Explain software myths in detail.

(b) Describe the different characteristics of software.

(c) Explain evolving role of software.

(d) Explain spiral model in detail.

(e) Explain incremental process model in detail.

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

(a) What is TSP ? Explain it.

(b) What is process in software engineering ? Explain in detail.

(c) Explain process technology in software engineering.

(d) Explain waterfall model in detail.

(e) What is PSP ? Explain it.

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

(a) Explain Feature Driven Development.

(b) What is an Agile process ?

(c) Explain politics of Agile Development.

(d) Explain the essence of practice in software engineering practice.

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

    (*a*) Modeling practices

    (*b*) Design Modeling Principles

    (*c*) Communication Practice

    (*d*) System simulation

    (*e*) System modeling.