M. Sc. (Computer Science) 2nd Semester

CBCS Scheme Examination, July-2022

COMPUTER NETWORKS

Paper-16MCS22C4

Time allowed : 3 hours]　　　[Maximum marks : 80

Note : *Attempt a total of* ***five*** *questions.* ***Question No. 1 is*** ***compulsory.*** *Attempt* ***one*** *question from each unit.* *All questions carry equal marks.*

1. (a) Compare Parallel and Serial Communication. 2

   (b) Give out advantages of Optical Fiber as communication media. 2

   (c) Explain about CRC codes. 2

   (d) Write briefly about Fast Ethernet. 2

   (e) What to you understand by ICMP ? 2

   (f) Why cryptography is required ?. 2

   (g) Why collision takes place ? 2

   (h) What is the importance of DNS ? 2

Unit-I

2. (a) Draw the diagram and explain working of each layer of TCP/IP model. 8

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(b) Compare Bus and mesh topology and give out limitations and advantages of each topology. 8

3. (a) Tabulate the comparison of Synchronous and Asynchronous communications. 8

(b) Discuss briefly about Satellite as communication media. Also give out its advantages and limitations. 8

Unit-II

4. (a) Explain in detail similarities and the difference between Message switching and Packet switching. 8

(b) Write short notes on : 2×4=8

(i) Token Ring.

(ii) Token Bus.

5. (a) Write briefly about the following : 2×4=8

(i) Aloha.

(ii) CSMA/CD

(b) Discuss about various error Correction codes used for correcting error in data communication. Also give suitable example of each. 8

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Unit-III

6. (a) Discuss in detail IEEE 802.11 protocol. Also give out its specifications and use. 8

(b) Compare standard Ethernet and Gigabit Ethernet. 8

7. What do you understand by IP addressing and routing ? Discuss in detail IP addressing scheme IPv6. 16

Unit-IV

8. (a) Discuss various types of attack, those could be launched against the network. 8

(b) Explain working, robustness and execution of DES and AES. 8

9. Write short notes on the following : 4×4=16

(a) HTPP

(b) Firewall

(c) Congestion Control

(d) UDP

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M. Sc. Computer Science 2nd Semester

CBCS Examination,

July-2022

DATA STRUCTURE USING C

Paper-16MCS22C1

Time allowed : 3 hours]   *[Maximum marks : 80*

Note : *Attempt five questions in all, selecting one question from each unit. Question No. 1 is compulsory.*

1.   (a)   Define the term debugging.

      (b)   What do you mean by Sparse arrays ?

      (c)   Write note on string.

      (d)   Explain Priority Queue.

      (e)   Compare array and linked list.

      (f)   Differentiate tree and binary tree.

      (g)   What are the characterisitcs of a good algorithm.

      (h)   Define Primary and Secondary key.   8×2=16

Unit-I

2. Explain the various techniques of solving a problem.   16

3. (a) Write note on top down design approach and decision table.   8

    (b) What do you mean by Flow-chart ? Describe the various symbols with their purpose.   8

Unit-II

4. Explain the data types of C language in detail.   16

5. (a) What is recursion ? Compare recursion and iteration.   8

    (b) Explain the various operators used in C language.   8

Unit-III

6. (a) Define Stack. What are its applications.   8

    (b) Explain Circular Queue.   8

7. What are the various operations of linked list ? Explain by giving example.   16

Unit-IV

8. Define AVL tree. Explain search, insertion and deletion operation in AVL tree. Describe the advantages of it.   16

9. (a) Explain the various constituents of file.   8

    (b) What are linear search and binary search ? Explain.   8

M. Sc. Computer Science 2nd Semester

CBCS Re-appear Examination, July-2022

COMPUTER FUNDAMENTALS

Paper-16CSAF1

Foundation Elective Course

Time allowed : 3 hours]   [Maximum marks : 40

Note : *Questions No. 1 is compulsory. Attempt **four** more questions, selecting **one** question from each unit.*

1. Answer the following questions briefly :

    (a) What is ASCII ?

    (b) Write uses of RAM.

    (c) Explain Page setups in word processing.

    (d) Discuss spell check with examples.

    (e) Explain WAN.

    (f) Write the syntax and use of two DOS commands.

    (g) Explain advantages of system utility software.

    (h) Discuss web browsing.   8×1=8

Unit-I

2. (a) What is computer ? How is it useful and used ? Discuss its classification with examples.   4

(b) Discuss uses and advantages of various types of input devices with examples.   4

3. Explain the following briefly with suitable examples :

(i) Number systems and their types

(ii) Data processing and its advantages   5,3

Unit-II

4. (a) What is operating system ? How is it useful and used ? Discuss its functions with examples.   4

(b) Discuss uses and advantages of opitical disks with examples.   4

5. Describe the following with examples :

(a) Differentiate between CUI and GUI with their relative merits and demerits.

(b) Five major features of Windows Operating system   3, 5

Unit-III

6. (a) What is spread-sheet ? How is it used and useful ? Explain how functions are used in it with suitable examples.   4

(b) Discuss use and advantages of table handling in word processing.   4

7. Explain the following with examples :

(i) Clip arts in PowerPoint presentation

(ii) Text formatting in word processing.   4 each

Unit-IV

8. (a) What is data communication ? How is it used and useful ? Discuss with examples.   3

(b) Explain computer applications in research and Education with suitable examples.   5

9. Explain the following with examples :

(i) Instant messaging and its advantages

(ii) Search engine and e-mail   3, 5

M. Sc. (Computer Science) 2nd Semester CBCS

Examination, July-2022

OBJECT ORIENTED PROGRAMMING

USING C++

Paper-16MCS22C2

Time allowed : 3 hours]   [Maximum marks : 80

Note . **Question No. 1 is compulsory.** *Attempt **five** more questions selecting **one** from each unit.*

1. Answer the following questions briefly :   8×2=16

   (a) Discuss Data abstraction briefly.

   (b) Describe static member.

   (c) Define virtual inheritance.

   (d) What is container in C++ ?

   ( ) Discuss message passing with an example in C++.

   (f) Explain function overloading.

   (g) Describe standard template library.

   (h) What is abstract class ?

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Unit-I

2. (a) What is dynamic binding ? How is it useful and used ? Discuss its advantages with C++ examples. 9

   (b) Explain function calling and its types with examples briefly. 7

3. Explain the following briefly with suitable examples in C++ :

   (a) Control statements, its types and advantages. 9

   (b) Structure and Union and their uses. 7

Unit-II

4. (a) What is constructor ? How is it useful and used ? Explain its types with C++ examples. 12

   (b) Discuss protected member function and uses with examples. 4

5. Describe the following with examples in C++ :

   (a) Dynamic memory allocation and its merits and demerits 10

   (b) Object creation at run time and its uses 6

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Unit-III

6. (a). What is overriding ? How is it implemented ? Explain its advantages with examples in C++. 9

   (b). Explain binary operator overloading with an example in C++. 7

7. Explain the following with C++ examples :

   (a) Inheritance and its types 12

   (b) Virtual function and its advantages 4

Unit-IV

8. (a) What is re-throwing an exception ? How is it implemented ? Explain its advantages with examples in C++. 8

   (b). Explain overloading of template function with an example in C++. 8

9. Explain the following briefly with examples :

   (a) STL and its uses and advantages. 8

   (b) Class templates and their uses and applications. 8

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M.Sc. (Computer Science) 2nd Semester

CBCS Examination, July-2022

SOFTWARE ENGINEERING

Paper-16MCS22C3

Time allowed : 3 hours]   *[Maximum marks : 80*

Note : (i) *Attempt five questions in all. Question No. 1 is*

compulsory and attempt four more questions

by selecting one question from each unit.

(ii) *All questions carry equal marks.*

1. (a) What is software crisis ?

     (b) What are the advantages of prototype model ?

     (c) What do you mean by abstraction ?

     (d) What do you mean by risk management ?

     (e) What is size metric ?

     (f) Define verification and validation.

     (g) What is version control ?

     (h) Define audit and review.

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Unit-I

2. (a) What is software engineering ? Explain the need of software engineering techniques in software development.

   (b) Explain the waterfall model with the help of diagram. State its advantages and disadvantages.

3. (a) What is SRS ? What are the different components of SRS ?

   (b) What is ISO-9001 ? Explain the salient features of ISO-9001.

Unit-II

4. Explain the various COCOMO models for cost estimation. What are the limitations of cost estimation models ?

5. (a) What are the objectives of software design ? How do we transform an informal design into a detailed design ?

   (b) Define module coupling. Explain different types of coupling.

Unit-III

6. (a) What do you mean by programming style ? State the characteristics of good coding style.

   (b) What is software metrics ? Why we need it ? Explain McCabe's Cyclomatic Complexity metric.

7. (a) What is software testing ? Differentiate between black-box testing and white box testing.

   (b) What is integration testing ? Explain different integration testing techniques.

Unit-IV

8. What do you mean by re-engineering ? Explain various activities of re-engineering in detail.

9. (a) What is JM reliability model ? Illustrate its usefulness.

   (b) What is software reliability ? Differentiate between hardware and software reliability.