

Roll No.

Total Pages : 2

BVSD/D-20

12086

COMPUTER FUNDAMENTALS

Paper–BVSD-II

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all, selecting *one* question from each unit. Question number 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. Write short note on the following :

- (a) ALU.
- (b) Word length of a computer.
- (c) Refresh Rate.
- (d) Blue ray Disc.

UNIT-I

- 2.** What do you mean by computation? Explain different type of computers with their application in real world using suitable examples.
- 3.** What is memory? Explain the addressability of memory w.r.t. a computer using suitable examples.

UNIT-II

4. Explain the following IO units :
Mouse, Trackball, Scanner, OCR.
5. What do you mean by hard-copy output devices? Explain Dot matrix and Laser printers with their characteristics.

UNIT-III

6. Differentiate between following :
 - (a) Primary and Secondary data storage.
 - (b) Magnetic Tape and Magnetic Disks.
7. Explain the following :
ROM, PROM, EPROM, DVD-RW.

UNIT-IV

8. What do you mean by 2's complement representation? Explain its benefits and applications in computers.
9. Perform following calculations :
 - (a) $(12345)_8 = (?)_{10}$.
 - (b) $(1101)_2 + (1111)_2 = (?)_{10}$.
 - (c) $(ABCD10)_{16} - (101)_{10} = (?)_{10}$.
 - (d) $6668 + 4442$ (Using BCD Coding method).

BVSD/D-20

12087

PC SOFTWARE

Paper-BVSD-12

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all. Q. No. 1 is compulsory.
Select *one* question from each unit.

Compulsory Question

1. (a) What is an operating system? Why is it necessary for an computer system?
 - (b) What is meant by formatting of a document? Name various tools for formatting in MS-Word.
 - (c) What are different types of data that can be entered in MS-Excel cell.
 - (d) What are different types of options available for rehearsing your presentation in MS-Power Point.
- (4×4=16)

UNIT-I

2. Discuss different features of Windows Operating System. Also enumerate different functions of Operating System in general. (16)
3. (a) Discuss various components of Windows. How to open multiple windows and activating them ? (8)

- (b) How we can install and uninstall different applications in windows operating system using control panel ? (8)

UNIT-II

4. What is mail merge? Discuss different steps for the same? (16)
5. (a) Discuss Linking and Embedding Objects in MS-Word. (8)
- (b) Discuss Spelling and Grammar and Autocorrect tool in MS-Word. (8)

UNIT-III

6. How do you define cell referencing? Discuss and define examples with its different types. (16)
7. (a) What is the difference between copying and moving the range? (8)
- (b) Discuss Sorting and Filtering Tables using Excel. Discuss using *one* example. (8)

UNIT-IV

8. Discuss different types of Animation options in MS-Power Point. Discuss using its steps. (16)
9. What is a slide show? What is its purpose and procedure? How we can insert a sound in any slide ? (16)

Roll No.

Total Pages : 2

BVSD/D-20

12088

OPERATING SYSTEMS-I

Paper–BVSD-13

Time : Three Hours]

[Maximum Marks : 80

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

Compulsory Question

1. Explain in brief :

- (a) Discuss Historical Evolution of Operating System.
- (b) What is the difference between Process and Program?
- (c) What is a virtual memory?
- (d) What are streams? (4×4=16)

UNIT-I

- 2.** Define Operating system. Explain functions and characteristics of Operating system. 16
- 3.** (a) Explain Distributed systems and Real Time systems in detail. 8
- (b) Explain System calls and System program. 8

UNIT-II

4. (a) What are Process states? Explain Process states transition. 8
- (b) What do you mean by an Interrupt? Explain the process of Interrupt processing. 8
5. Explain following CPU scheduling algorithms in detail.
 - (a) FCFS. 8
 - (b) Round Robin scheduling. 8

UNIT-III

6. What do you mean by Memory management? What is fragmentation? Explain different types of fragmentation in detail. 16
7. (a) Explain memory partitioning and its types. 8
- (b) What is page fault? Explain thrashing in detail. 8

UNIT-IV

8. Discuss various Device management functions. And also Explain various I/O Hardware. 16
9. (a) Discuss Disk structure and Disk managements. 8
- (b) Explain meaning of Disk scheduling. Explain *one* example of disk scheduling algorithm in detail. 8

Roll No.

Total Pages : 5

BVSD/D-20

12089

PROGRAMMING FUNDAMENTALS AND C

Paper–BVSD-14

Time : Three Hours]

[Maximum Marks : 80

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

नोट : प्रत्येक इकाई से **एक-एक** प्रश्न का चयन करते हुए, कुल **पाँच** प्रश्नों के उत्तर दीजिए। प्रश्न सं. 1 अनिवार्य है। सभी प्रश्नों के अंक समान हैं।

Compulsory Question

(अनिवार्य प्रश्न)

1.
 - (i) What are the characteristics of good algorithm?
 - (ii) What is comma operator?
 - (iii) Differentiate between prefix and postfix ++ operators.
 - (iv) What is the need of a function prototype?

- (i) उत्तम कलन-विधि की क्या विशेषताएँ हैं?
- (ii) कौमा ऑपरेटर क्या है?
- (iii) प्रीफिक्स तथा पोस्टफिक्स ++ ऑपरेटरों के मध्य अन्तर कीजिए।
- (iv) फंक्शन प्रोटोटाइप की क्या आवश्यकता है?

UNIT-I

(इकाई-I)

2. Differentiate between following :

- (i) Limited entry decision table and extended entry decision table.
- (ii) Compiler and Interpreter.
- (iii) High level and low level languages.

निम्नलिखित के मध्य अन्तर कीजिए :

- (i) लिमिटेड एंट्री डिजिजन टेबल तथा एक्सटेंडेड एंट्री डिजिजन टेबल।
- (ii) कम्पाइलर तथा इंटरप्रीटर।
- (iii) उच्च स्तरीय तथा निम्न स्तरीय भाषाएँ।

3. (i) What is flow chart? Draw the flow chart to find whether given integer is prime or not.
- (ii) Write the algorithm for above-mentioned problem.

- (i) प्रवाह संचित्र क्या है? दिया गया इंटीजर प्राइम है या नहीं, यह ज्ञात करने के लिए एक प्रवाह संचित्र बनाइए।
- (ii) उपर्युक्त समस्या के लिए कलन-विधि लिखिए।

UNIT-II

(इकाई-II)

- 4.
 - (i) What is hierarchy of operators? Discuss the hierarchy of operators in C language.
 - (ii) Write a program in C to find the sum of digits in an integer number.
- (i) ऑपरेटरों का पदानुक्रम क्या है? C भाषा में ऑपरेटरों के पदानुक्रम का वर्णन कीजिए।
 - (ii) किसी इंटीजर संख्या के अंकों का योग ज्ञात करने के लिए C में एक प्रोग्राम लिखिए।
- 5.
 - (i) What is the difference between do-while and while loop? Explain.
 - (ii) Write a program in C to read an integer in the range 1 to 12 and print the corresponding month of the year using switch statement.

- (i) do-while तथा while loop के मध्य क्या अन्तर है? वर्णन कीजिए।
- (ii) 1 से 12 की परास में किसी इंटीजर को पढ़ने के लिए C में एक प्रोग्राम लिखिए और स्विच स्टेटमेंट का प्रयोग करते हुए वर्ष का संगत माह प्रिंट कीजिए।

UNIT-III

(इकाई-III)

6. What are the parameter passing techniques available in C language? Write a function in C to perform the linear search.
C भाषा में उपलब्ध पैरामीटर पासिंग तकनीक कौन-कौन सी हैं? रैखिक सर्च निष्पादित करने के लिए C में फंक्शन लिखिए।
7. What is an array? Write the functions in C to compute the trace and transpose of the matrix.
ऐरे क्या है? मैट्रिक्स के ट्रेस तथा ट्रांसपोज की गणना के लिए C में फंक्शन लिखिए।

UNIT-IV

(इकाई-IV)

8. What is pointer? Write a program in C to sort a list of names using array of pointers.
प्वाइण्टर क्या है? प्वाइण्टरों के ऐरे का उपयोग करते हुए नामों की सूची छाँटने के लिए C में प्रोग्राम लिखिए।

9. (i) What is union? What is the difference between union and struct? Discuss.
- (ii) Write a program in C illustrating the use of pointers to struct.
- (i) यूनियन क्या है? यूनियन तथा स्ट्रक्ट के मध्य क्या अन्तर है? वर्णन कीजिए।
- (ii) स्ट्रक्ट के लिए प्वाइण्टरों का उपयोग प्रदर्शित करने हेतु C में एक प्रोग्राम लिखिए।
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Roll No.

Total Pages : 3

BVSD/D-20

12090

RDBMS-1

Paper–BVSD-31

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all. Question No. 1 is compulsory. Attempt *four* more questions selecting *one* question from each unit. All questions carry equal marks.

Compulsory Question

1. Write short note on the following :

- (a) Who was Dr. E.F. Codd? Discuss Codd's rules.
- (b) What are the different types of joins? Illustrate with examples.
- (c) Distinguish between SQL and PL/SQL. Write data types used in SQL.
- (d) What do you mean by PL/SQL transaction? Outline PL/SQL block. (4×4=16)

UNIT-I

- 2.** (a) What are the essential properties of Database Management System? How DBMS architecture achieve data independence?
- (b) What are the different database users? Discuss the role and responsibilities of database administrator. (8+8=16)

3. Differentiate between the following :
- (a) Strong and weak entity.
 - (b) Composite and Multi-valued attributes.
 - (c) Primary key and Foreign key.
 - (d) Network and relational data model. (4×4=16)

UNIT-II

4. (a) What do you mean by relational algebra? Discuss different operations performed in relational algebra with suitable example.
- (b) What is logical design of database? Explain the consequences of bad database designing. (8+8=16)
5. What is meant by normalization? Why we normalize the database? Explain different techniques of normalization based on the concept of functional dependencies. 16

UNIT-III

6. (a) Write the purpose and syntax for creating a table from table. Why and how tables are renamed and destroyed?
- (b) What do you mean by constraints? How primary key constraints are implemented at column level and table level? (8+8=16)
7. (a) What are data functions? Distinguish between scalar, group and aggregate functions.
- (b) Why views are created? Write the syntax for renaming and destroying the views. (8+8=16)

UNIT-IV

8. What is cursor? Why we use cursor? Discuss implicit, explicit and parameterized cursors with specimen examples. 16
9. How these PL/SQL objects are declared? Explain different keywords and parameters used in such declarations. Discuss the procedure for import/export in SQL. 16
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BVSD/D-20**12091****DATA STRUCTURES****Paper–BVSD-32**

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all. Question Number 1 is compulsory. In addition to compulsory question, attempt *four* more questions selecting exactly *one* question from each unit. All questions carry equal marks.

Compulsory Question

1. (a) What do you mean by data structure?
- (b) What is a sparse matrix?
- (c) How can you represent a linked list in computer memory?
- (d) Name some applications of queues.
- (e) What is recursion?
- (f) What is a heap?
- (g) What is adjacency matrix?
- (h) What is the meaning of radix in radix sort?

(8×2=16)

UNIT-I

2. (a) How can you find the complexity of an algorithm?
Explain using suitable example. 8
- (b) How can you store strings in computer memory?
Explain in detail. 8
3. (a) Write an algorithm for inserting an element in an array
at a given location. 8
- (b) Write an algorithm to find sum of diagonal elements of
a matrix. 8

UNIT-II

4. Explain various types of linked lists along with their
advantages and disadvantages. Write an algorithm to traverse
a linked list. 16
5. Write down the algorithms for inserting and deleting an
element in a stack using both array representation and linked
representation. 16

UNIT-III

6. Write an algorithm for sorting the data using quicksort.
Explain the algorithm using suitable example. Also find
complexity of the algorithm. 16
7. How can you represent a binary tree in computer memory?
Write an algorithm for traversing the binary tree using
postorder traversal. Explain the algorithm using suitable
example. 16

UNIT-IV

8. Write down an algorithm for traversing a graph using DFS.
Explain the algorithm using suitable examples. 16
9. (a) Write down an algorithm for searching a number from
a given list of numbers using linear search. 8
- (b) Explain bubble sort with the help of an example. 8
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BVSD/D-20

12092

SOFTWARE ENGINEERING

Paper–BVSD-33

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all, selecting *one* question from each unit. Question number 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) When is it advisable to use prototyping model of software development? .
- (b) What is the difference between Functional and Non-Functional requirements?
- (c) Discuss boundary value analysis using suitable example.
- (d) What is preventive maintenance?

UNIT-I

2. (a) What were the causes of software crisis? Discuss.
- (b) What are the limitations of waterfall model? Explain.

3. (a) Define risk. What are the most common risks in software development? Discuss in brief risk mitigations.
- (b) Discuss in brief the use of PERT in project scheduling.

UNIT-II

4. (a) What is SRS? What are its different components? Discuss.
- (b) Explain temporal cohesion using suitable example.
5. (a) Draw the ERD for library system. Make and specify the necessary assumptions.
- (b) Differentiate between content coupling and control coupling using suitable examples.

UNIT-III

6. (a) What is structured programming? What are its rules? Discuss.
- (b) What is the difference between black box testing and white box testing? Explain equivalence class partitioning using suitable examples.
7. (a) Using an example show that Path coverage is stronger criteria branch coverage to generate test cases.
- (b) Illustrate the process of generating the test cases using cause effect graphing.

UNIT-IV

8. (a) Differentiate between adaptive and perfective maintenance using suitable examples.
- (b) Discuss the features affecting the maintainability of the software.
9. (a) What is integration testing? What type of faults are detected by it? Explain.
- (b) What is Beta Testing? What is the need of it? Discuss.
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BVSD/D-20

12093

OBJECT ORIENTED PROGRAMMING WITH C++

Paper–BVSD-34

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all. Q. No. 1 is compulsory. Attempt *four* more questions selecting *one* question from each unit.

Compulsory Question

1. Answer the following questions in brief :

- (a) What do you mean by abstraction and data encapsulation in C++.
- (b) What is the concept of namespace in C++?
- (c) What is copy constructor in C++? Give an example.
- (e) What is 'this' pointer?
- (e) Differentiate between Function overloading and Function overriding.
- (f) What is the role of destructor in inheritance?
- (g) What is template function? Give an example.
- (h) Differentiate between Error and Exception. (8×2=16)

UNIT-I

2. (a) What is object oriented programming language (OOPL)? Why OOPL is better than procedure oriented languages? Explain. 8
- (b) What is friend function in C++? Explain with an example. 8
3. (a) What do you understand by inline function? How is it different from ordinary function? Explain with an example. 8
- (b) What are pre-processor directives? Why are they needed in C++? Discuss. 8

UNIT-II

4. (a) What do you mean by Constructor? Differentiate between default constructor and parameterized constructor with an example. 8
- (b) What are the drawbacks of static memory allocation? How is it overcome? Explain with an example. 8
5. (a) What are manipulators in C++? How are they useful to manage output in C++? Explain with examples. 8
- (b) Explain formatted I/O in C++ with examples. 8

UNIT-III

6. (a) What is operator overloading? What is use of operator overloading? Write a program in C++ to overload + binary operator to add two vectors. 8
- (b) What are different rules of derivation in C++? 8
7. (a) What is multi-level inheritance? Explain with a suitable example. 8
- (b) What is multiple inheritance? Explain with a suitable example. 8

UNIT-IV

8. (a) What are Class Templates ? Give an example. 8
- (b) Explain rules of derivation from a template class with an example. 8
9. (a) What do you mean by exception handling? How are exceptions handled in C++? Explain with a suitable example. 8
- (b) How can you re-throwing an exception? Explain with an example. 8
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BVSD/D-20

12094

CURRENT TECHNOLOGIES

Paper–BVSD-51

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all. Q. No. 1 is compulsory.
Attempt *four* more questions selecting *one* question from each unit.

Compulsory Question

1. Answer the following questions in brief :

- (a) Explain any *four* services provided by Cloud?
- (b) Explain *four* advantages of virtualization.
- (c) Differentiate between Parallel and Distributed computing.
- (d) Explain grid security in brief. (4×4=16)

UNIT–I

- 2.** (a) What is Cloud computing? Explain the layered architecture of Cloud by describing function of each layer. 8
- (b) What do you mean by cloudonomics? Explain the laws of cloudonomics. 8

3. (a) Discuss the various deployment models used in Cloud computing. 8
- (b) Explains the various measures used to calculate cost in Cloud computing. 8

UNIT-II

4. (a) Explain hypervisor and machine imaging used in Clouds. 8
- (b) Explain the following services : Windows Live and Elastic Compute Cloud. 8
5. Write short notes on the following PaaS Application Frameworks :
- (a) Drupal. 8
- (b) Wave Maker. 8

UNIT-III

6. (a) What is Cluster computing? How is it different from Grid Computing? Explain. 8
- (b) What is OGSA architecture? What are its limitations? Also, explain WSRF architecture. 8
7. (a) What is Grid monitoring architecture? Explain R-GMA and Ganglia architectures. 8
- (b) Explain the anatomy and physiology of grid computing. 8

UNIT-IV

- 8.** (a) What is Grid Scheduling? Explain the working principles of grid scheduling. 8
- (b) What are the challenges in Grid security? Explain. 8
- 9.** Write short notes on the following :
- (a) X509 Certificates. 8
- (b) PBS Grid Scheduling. 8
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BVSD/D-20

12095

E-COMMERCE

Paper–BVSD-52

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) Brief the impact of e-commerce on Indian industries.
 - (b) Write a detailed note on search engines. List the name of any *four* search engines.
 - (c) What is corporate purchasing? How such purchases are conducted?
 - (d) Differentiate between e-commerce and e-business.
- (4×4=16)

UNIT–I

2. Discuss the features and principles related to e-commerce. Distinguish between (a) pure and partial e-commerce, (b) e-commerce practices and traditional commerce. 16
3. Outline and explain generic framework of e-commerce. How different classifications of e-commerce support this framework? 16

UNIT-II

4. (a) "Doing money transaction through technology are always risky." Give your opinion.
(b) What precautions one must take while making banking transaction electronically? (8+8=16)
5. What is cyber cash? How security is ensured in cyber cash? Elaborate customer to merchant payments and peer-to-peer payments. 16

UNIT-III

6. How e-commerce contributes to financial and information services? Discuss the future of e-commerce. 16
7. Write detailed note on the following :
(a) Supply chain management.
(b) Obstacles in adopting e-commerce applications. (8+8=16)

UNIT-IV

8. (a) Discuss the role of news group and forums for launching your business.
(b) Write the process for maintenance of business records. (8+8=16)
9. What is the appropriate size of e-business back end system? Explore the different recovery strategies. 16
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Roll No.

Total Pages : 3

BVSD/D-20

12096

WEB TECHNOLOGY-II- ASP.NET

Paper–BVSD-53

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all, selecting *one* question from each unit. Question Number 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) List any *two* features of CLR.
(b) Describe Cache Object.
(c) What is garbage collection?
(d) What is data provider?
(e) Define metadata.
(f) State MSIL.
(g) SOAP stands for Simple Object Access Protocol.
(True/False)
(h) OLE stands for Object Linking and Embedding.
(True/False)
(8×2=16)

UNIT-I

2. (a) Explain CLR and CTS. 6
(b) Describe class libraries. 10

3. Explain the architecture of ASP.NET framework. 16

UNIT-II

4. (a) Describe common validator properties for different validation controls. 10
- (b) What are user controls? Write the process for creating user controls in ASP.NET. 6
5. Explain event handling. 16

UNIT-III

6. (a) Differentiate radio button and radio button list control. 6
- (b) What do you mean by web services in .NET, name different web services? 10
7. (a) Describe various web controls used to design a web form. 10
- (b) Explain state management for user navigation. 6

UNIT-IV

8. (a) Write a code to insert and update data into a SQL Server database from an ASP.NET web page. 10
- (b) What is the authentication and authorization in ASP.NET? 6

9. (a) Explain ADO.NET in brief. 10
- (b) Differentiate Output caching and User Control caching. 6
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Roll No.

Total Pages : 3

BVSD/D-20

12097

ADVANCED JAVA

Paper–BVSD-54

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all, selecting *one* question from each unit. Q. No. 1 is compulsory. All carry equal marks.

Compulsory Question

1. Write short note on the following :

- (a) Popup Menu.
- (b) J-Tree.
- (c) AWT Controls.
- (d) J-Panel.
- (e) Combo box.
- (f) Cookies.

UNIT–I

- 2.** Write Applet code to Design Line and Rectangle by dragging mouse using proper interfaces.
- 3.** (a) Write Java code to draw smiling face using Applet graphics.

- (b) Discuss different event handling mechanism in JAVA.

UNIT-II

4. Explains with an example character stream and byte stream classes. Discuss String tokenizer and Stream tokenizer.
5. Write a Java programme to move characters from one file into another file.

UNIT-III

6. Write Applet code for Filling an student form that having text field. CheckBox and RadioButtons. User enter information in these fields and displaying all information in second half portion of applet while pressing CLICK button.
7. Write short note of following with suitable Java code :
 - (a) Menu.
 - (b) Canvases.
 - (c) Scroll bars.

UNIT-IV

8. Write short note of following with suitable Java code :
 - (a) J-Scroll Pane.
 - (b) J-Combo Box.
 - (c) J-Tree.

9. (a) Write program to demonstrate J-Radio button and J-Combobox.
- (b) Write Servlet program for accessing record from Database and cookies.
-