Roll No. [ ]

Total No. of Questions : 07

Total No. of Pages : 02

BCA/ B.Sc.(IT)/(Graphics & Web Designing) (Sem.–1)

MATHEMATICS

Subject Code : UGCA1901

M.Code : S76961

Date of Examination: 18-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Solve the following :**

a) Define Singleton Set.

b) If A = {4,7}& B = {2,5}, find A ∪ B.

c) Write the Power set of $A = \{a, b\}$.

d) Write the negative statement of "Earth revolves around the Sun."

e) Write the truth table for Disjunction.

f) Define identity Matrix.

g) If $X\begin{bmatrix} 2 & 3 \\ -1 & 4 \end{bmatrix}$ & $Y = \begin{bmatrix} 1 & 0 \\ -2 & 3 \end{bmatrix}$, then find $X - Y$.

h) If $A = \begin{bmatrix} 0 & 6 \\ 3 & -4 \end{bmatrix}$, Find the transpose of A.

i) Find the 9th term in the sequence 5, 10, 20, ... of G.P.

j) Define Arithmetic mean.

SECTION-B

2. If $U = \{1,2,3,4,5,6,7,8,9\}$, $X = \{1,2,7,8\}$ & $Y = \{2,5,8,9\}$. Find $X \cup Y$, $X \cap Y$, $Y - X$, Y'.

3. Prove that: $p \vee (q \wedge r) = (p \vee q) \wedge (p \vee r)$.

4. If $X = \begin{bmatrix} 5 & 2 & -3 \\ 1 & 0 & 6 \\ -5 & 1 & 7 \end{bmatrix}$, $Y \begin{bmatrix} 3 & -2 & 6 \\ 2 & 7 & -1 \\ 5 & 4 & 0 \end{bmatrix}$, then find YX.

5. If $A = \begin{bmatrix} 4 & 2 & -3 \\ 1 & 3 & -6 \\ -5 & 0 & -7 \end{bmatrix}$, $B = \begin{bmatrix} 0 & -2 & -1 \\ 1 & 3 & 0 \\ -5 & 0 & -7 \end{bmatrix}$, *then find* $2A + 3B$.

6. How many natural numbers are there between 200 and 500 which are divisible by 7.

7. The 3rd and 8th term of a G.P. are 4 and 128 resp. Find the G.P.

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Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Total No. of Questions : 07 Total No. of Pages : 02

B.Sc. (IT)/ BCA/ B.Sc.(Graphics & Web Designing) (Sem.–1)

MATHEMATICS

Subject Code : UGCA1901

M.Code : 76961

Date of Examination: 18-12-2024

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly:**

   a. Roaster method

   b. Singleton set

   c. Prove that A\B and B\A are disjoints.

   d. Conjunction

   e. Tautology

   f. Scalar matrix

   g. Arithmetic mean

   h. Geometric progression

   i. If $A=\begin{bmatrix}2 & 5\\ 1 & 3\end{bmatrix}$, $B=\begin{bmatrix}1 & -1\\ -3 & 0\end{bmatrix}$, find $3A-2B$

   j. Prove by an example that AB can be zero matrix when either of A and B is zero matrix.

SECTION-B

2. a) Let A = {0, 2, 3}, B = {2, 3} and C = {1, 5, 9} and let the universal set U = {0, 1, 2, 3, ..., 9}. Determine

   i) $A \cup B$,

   ii) $A \cap C$,

   iii) $A - B$,

   iv) A^C,

   v) $(B \cap C)^C$.

   b) List all the members of the power set of the set A = {a, b, 2, 3}

3. a) Define logical and compound statements with examples of each.

   b) Prove that $(p \wedge q) \rightarrow (p \vee q)$ is tautology.

4. For what values of x, y, z, w

$$3\begin{bmatrix}x & y\\ z & w\end{bmatrix}=\begin{bmatrix}x & i\\ -1 & 2w\end{bmatrix}+\begin{bmatrix}4 & x+y\\ z+w & 3\end{bmatrix}$$

5. Verify that $(AB)' = B'A'$, if $A=\begin{bmatrix}2 & 1 & 3\\ 4 & 1 & 0\end{bmatrix}$, $B=\begin{bmatrix}1 & -1\\ 0 & 2\\ 5 & 0\end{bmatrix}$

6. a) Prove that if a, b, c are in AP, then $b^2+c+bc, c^2+a^2+ca, a^2+b^2+ab$ are AP.

   b) Insert 5 AMs between 9 and 27.

7. a) The fifth term of a GP is 81 and the second term is 24, find the series.

   b) Insert 5 GMs between 3 and 192.

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Total No. of Questions : 07 Total No. of Pages : 02

B.Sc. (Graphics & Web Designing) /(IT)/ BCA (Sem.–1)

FUNDAMENTALS OF COMPUTER AND IT

Subject Code : UGCA1902

M.Code : S76962

Date of Examination : 24-01-2025

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly:**

   a) What is the difference between Hardware and Software?

   b) What are header and footer? How are they put in document?

   c) Write difference between RAM & ROM.

   d) Write various features of PowerPoint.

   e) Write steps to sort data in a Spreadsheet.

   f) What is a browser?

   g) What is a cell in MS-Excel?

   h) Differentiate between an Optical Mouse and Mechanical Mouse.

   i) Define E-commerce.

   j) What are utility programs?

SECTION-B

2. Draw a block diagram of a computer. Explain the function of each of the blocks.

3. a) What is a wizard? How is it different from template?

   b) Explain the main functions performed by the system software of a computer system.

4. a) What is justification? Explain briefly the ways a paragraph in a MS-Word document can be justified.

   b) Write steps to insert image in a PowerPoint slide.

5. Explain Electronic Payment system in detail.

6. **Write short note on:**

   (a) What is cell reference? Explain its advantages.

   (b) Convert $(C125)_{16}$ to $(?)_2$, $(?)_8$, $(?)_{10}$.

7. What is Macro in MS-Word? What are its features? How can we insert Macros in a document?

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BCA/B.Sc.(Graphics & Web Designing/ IT) (Sem.–1)

FUNDAMENTALS OF COMPUTER AND IT

Subject Code : UGCA1902

M.Code : 76962

Date of Examination : 23-12-2024

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly:**

   a. What are the major functional units of a computer system?

   b. What is a number system, and why are they used in computer systems?

   c. What is the difference between a compiled language and an interpreted language?

   d. Differentiate between a single-user and a multi-user operating system.

   e. How do backup and recovery programs work, and why are they important?

   f. What is the purpose of speaker notes in Microsoft PowerPoint?

   g. How do you insert images, charts, and other objects into a Microsoft Word document?

   h. How can you sort the data in Microsoft Excel?

   i. What is UPI (Unified Payments Interface), and how does it facilitate electronic fund transfer between bank accounts?

   j. How do digital signatures and certification authorities work?

SECTION-B

2. How do digital signatures and certification authorities help to ensure the integrity of online transactions, and how can they be used to improve security in e-commerce and other digital transactions? What is the process to register a digital signature?

3. What are some common features of Microsoft PowerPoint, such as slide layout, animations, and transitions? What is the difference between a slide master and a slide layout in Microsoft PowerPoint?

4. What is conditional formatting, and how is it used to highlight data in Microsoft Excel? How do you create and format charts in Microsoft Excel?

5. How can you use macros to automate tasks in Microsoft Word? What are templates, and how are they used in Microsoft Word?

6. How do operating systems manage computer resources such as memory, CPU, and storage? What is disk management software, and how is it used to manage computer storage?

7. How do the different functional units of a computer system interact with each other? Explain with diagram. What are the different types of memory used in a computer system?

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No. of Questions : 05

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B.Com. Hons./B.Sc.(Hons.)N&D/B.Sc.(AI&ML)/
BT/FD/G&WD/IT/MLS/B.Voc. (Beauty Therapy and
Asthetics)/BTTM/BBA(SIM)/BBA
BAJMC/BHMCT/BCA (Sem.–1)

ENGLISH

Subject Code : BTHU103-18

M.Code : 75085

Date of Examination : 04-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. All questions are COMPULSORY.
2. Q1, Q2 and Q3 carry TEN marks each.
3. Q4 and Q5 carry FIFTEEN marks each

1. What is Communication? Explain in detail the types and modes of Communication.

2. How is Verbal Communication different from Non- verbal Communication? How important is the non-verbal communication in conveying the ideas and instructions?

3. Big cities in the States are the worst choice for living. The funny thing is that you have to pay dearly for the advantage of living in a city where it can be very difficult to buy your own house. Large cities are too large to control; they impose their living conditions on the people who inhabit them. City-dwellers are obliged to adopt an unusual way of life. Furthermore, it seems impossible to avoid the rush hour; wherever you go roads are blocked with cars and streets are filled with people. In addition, crimes are more in cities which are full of places you would be afraid to visit. Can anyone doubt that the country is where a man truly belongs?

   In FOUR sentences, summarise and paraphrase the following passage in an answer to the following question:

   Why do some people refuse to live in big cities?

4. Write a letter to an applicant for the post of Chief Accountant to present himself for a personal interview.

5. You, as a marketing manager have been given the responsibility of conducting and preparing a market research to know the market potential of a new product which your company is intending to launch in the market in near future. Prepare a draft report.

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Total No. of Questions : 07

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BCA (Sem.–1)

PROBLEM SOLVING USING C

Subject Code : UGCA-1903

M.Code : 76963

Date of Examination : 07-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

   a) What are the badsic data types associated with C?

   b) Define the term Identifiers and Keywords.

   c) What are Constants and what are its types?

   d) Differentiate between formatted and unformatted I/O functions.

   e) Differentiate between break and continue statements in C.

   f) Differentiate between structure and union.

   g) What is a pointer? How a variable can be assessed using pointer?

   h) How are multidimensional arrays defined?

   i) What do you mean by Function Prototyping? Explain in brief.

   j) What are formal and actual Parameters in Functions?

SECTION-B

2. **Write a detailed note on following :**

   a) Decision Trees

   b) Pseudo code and Algorithms

3. **Explain the following operators with suitable examples :**

   a) Relational Operators

   b) Logical Operators

4. **Write a C Program to print Fibonacci series up to n terms using :**

   a) While loop

   b) For loop

5. What is recursion? Write a C program to find sum of first n natural numbers using recursion.

6. What is Storage class? Explain various storage classes with suitable example of each.

7. **Write a detailed note on the following:**

   a) Pointers

   b) Processing a data file

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BCA (Sem.–2)

ENVIRONMENTAL STUDIES

Subject Code : EVS-102-18

M.Code : 77421

Date of Examination : 11-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly:**

   a) Producers

   b) Global Warming

   c) Food Chain

   d) Abiotic factors

   e) Acid Rain

   f) National Park

   g) Species Biodiversity

   h) Red Data Book

   i) Deforestation

   j) Soil Erosion.

SECTION-B

2. Discuss the role of public awareness in environment conservation.
3. Discuss Lake Ecosystem in detail with the help of a suitable diagram.
4. Explain important functions of a Forest Ecosystem and various threats faced by them.
5. What is a Biodiversity Hotspot? Discuss it with the help of a suitable example.
6. What are the various causes of Air Pollution? Give its health risks.
7. What do you understand by Global Climate Change? Discuss their effects.

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Total No. of Questions : 07

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BCA (Sem.–2)

COMPUTER SYSTEM ARCHITECTURE

Subject Code : UGCA-1908

M.Code : 77416

Date of Examination : 13-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly:**

   a) What are the various types of Logic gates?

   b) Explain SOP and POS forms.

   c) What is Bus?

   d) What is Multiplexure?

   e) What is D flip flop, explain with example?

   f) What is Decoder?

   g) What is Race around condition in Flip flop?

   h) What is instruction format?

   i) What are I/O instructions?

   j) What is 16 bit common bus?

SECTION-B

2. Explain the implementation of AND, OR and NOT gate with universal gates.
3. Draw and explain Half Adder and Half subtracter with example.
4. Explain Implementation of Boolean equations with Demultiplexer.
5. Draw and explain JK Flip-flop and D-Flip-flop.
6. What is stored program concept-Von Neumann Architecture? Explain.
7. Explain the three types of Buses in Computer architecture.

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BCA/B.Sc. (IT) (Sem.-2)

Roll No. _____

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BCA (Sem.-2)

OBJECT ORIENTED PROGRAMMING USING C++

Subject Code : UGCA-1909

M.Code : 77417

Date of Examination : 14-12-2024

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Explain the following:

   i) Name any three preprocessor directives in C++.

   ii) List the features of object oriented programming language C++.

   iii) What are the steps involved in execution of a C++ program?

   iv) What is member functions in a class?

   v) How many types of access specifiers are provided in C++?

   vi) What is dynamic initialization of Objects in C++?

   vii) Differentiate between multiple and multilevel inheritance.

   viii) What are rules for overloading operators?

   ix) What is an abstract class?

   x) What are the various file streams available in C++?

SECTION-B

2. i) Write a sample code to show the structure of C++ program code.

   ii) What are the difference between procedure oriented languages and object oriented programming language?

3. What is class and object? How a class is declared? Explain concept of array of objects by taking a suitable example.

4. Explain the use of constructors and destructors in C++ with the help of an example. Can we use multiple constructors in a class in C++.

5. What is inheritance? Explain different types of inheritance in C++. Write a program to show use of single inheritance.

6. i) What do you mean by operator overloading?

   ii) Explain the concept of early binding and late binding in detail.

7. What are the various methods of opening files in C++? How to read and write data to files in C++? Explain giving examples.

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BCA (Sem.–2)

FUNDAMENTALS OF STATISTICS

Subject Code : UGCA-1907

M.Code : 77415

Date of Examination : 17-12-2024

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly:

   a. Discuss the importance of Statistics.

   b. Distinguish between primary and secondary data.

   c. What is the importance of classifying data in statistics?

   d. Explain the purpose of tabular presentation in data classification.

   e. A company collected data on the monthly sales figures of their top five products:

      120, 150, 180, 200 and 250 units. Calculate the arithmetic mean.

   f. What is meant by the term "Central Tendency" in Statistics?

   g. Calculate the mode for the following data set: 4, 5, 6, 6, 7, 8, 6, 9.

   h. Calculate the coefficient of variation for the following data where the standard deviation is 10 and the mean is 50.

   i. Define "Range".

   j. Discuss the merits & demerits of Mean Deviation.

SECTION-B

2. Discuss the scope, functions, and limitations of statistics. Also, explain why there is distrust in statistics?

3. Explain the different methods of data collection, including both primary and secondary data. Highlight the potential sources of statistical errors.

4. Create a frequency distribution and calculate the cumulative frequency for the following data set:

   7, 8,12,13, 8,14,11,10,15,13, 9, 8,12,14,10.

5. Describe the different types of diagrams and graphs used in presenting data. What are the advantages and disadvantages of using these visual aids?

6. Calculate the arithmetic mean, median, and mode for the following data and discuss when each measure is most appropriate: 5, 8, 12, 5, 10, 8, 15, 10, 8, 5.

7. Calculate the range, mean deviation, and standard deviation for the following data set: 5,10,15,10, 20, 25, 30, 25, 20.

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Total No. of Questions : 07

Total No. of Pages : 02

BCA/B.Sc. (IT) (Sem.–3)

PROGRAMMING IN PYTHON

Subject Code : UGCA1914

M.Code : 78180

Date of Examination :18-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly :**

   a) Iteration

   b) Pseudo Code

   c) Expression

   d) Define Selection.

   e) Length function on strings

   f) Python break statement

   g) Numbers

   h) Intermediate mode and script mode

   i) String upper function

   j) Threads.

SECTION-B

2. Explain call by value and call by reference.
3. How to check whether a given number is Armstrong number or not?
4. What is indexing and negative indexing in Tuple?
5. Write a program to convert Celsius to Fahrenheit.
6. What type of conditional structures is present in a programming language? How many of them are supported in Python? Explain with example.
7. Explain in detail about Python Files, its types, functions and operations that can be performed on files with examples.

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BCA (Sem.–3)

COMPUTER NETWORKS

Subject Code : UCCA-1913

M.Code : 78179

Date of Examination : 29-12-2024

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

a) Analog

b) Modem

c) MAN

d) Ring vs Mesh

e) Switch law

f) PPP

g) Flow control

h) CDMA

i) Buffering

j) FTP

SECTION-B

2. What is Unguided Network Media? Explain its types, merits and demerits.

3. Explain different types of error detection and error correction methods with example.

4. Discuss various routing algorithms.

5. What is OSI reference model? Compare it with TCP/IP model.

6. Differentiate between circuit, message and packet switching.

7. Define frame. Explain the services provided by data link layer.

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B.Sc. (I.T) / BCA (Sem.–3)

DATA STRUCTURES

Subject Code : UGCA1915

M.Code : 78181

Date of Examination : 23-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly :**

   a) Flowchart

   b) Array *vs* Pointers

   c) Complete binary tree

   d) De-queue

   e) Big 'O' Notation

   f) Stack

   g) Out-degree

   h) AVL Tree

   i) Linked List

   j) Recursion.

2. Differentiate between arrays and linked list.

3. Explain depth first search and breadth first search in graphs.

4. Perform bubble and selection sort on given array :

   43, 57, 66, 11, 9, 96, 23, 37, 72, 88

5. How to convert in-fix notation into post-fix notation?

6. What is a Queue? Write algorithm to insert and delete a node in circular queue.

7. What is BST? Explain its traversals with an example.

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BCA (Sem.–3)

PC ASSEMBLY & TROUBLESHOOTING

Subject Code : UGCA-1919

M.Code : 78185

Date of Examination : 02-01-2025

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

a) Hardware

b) Notebook computers

c) Memory

d) Printers

e) WAN

f) Drivers

g) Processor

h) Sharing resources

i) Components

j) Troubleshooting

SECTION-B

2. Briefly explain the history of computers.
3. Write the steps of installation and configuration of microcomputers.
4. Define motherboards. Procedure to select the right motherboard.
5. Explain the working of scanners.
6. Discuss the procedure to share the resources.
7. What are supporting I/O devices. Also explain booting and its types.

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Total No. of Pages : 02

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BCA (Sem–4)

DATABASE MANAGEMENT SYSTEMS

Subject Code : UGCA1922

M.Code : 79726

Date of Examination: 09-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly:**

   a. DML

   b. Data Redundancy

   c. Relational DBMS

   d. DCL

   e. ER Model

   f. Dependency

   g. Database Trigger

   h. Database Integrity

   i. Stored Procedure

   j. Concurrency Management.

SECTION-B

2. Write a note on the comparison of Hierarchical, Network and Relation
3. Explain in detail the Role Played by Relational Algebra and Calculus.
4. Explain the Role of Normalization and its types on Student Address Database.
5. Explain in detail Database Recovery and Database Security.
6. Write a note on Design of Distributed Databases.
7. Explain in detail the Concept of Multivalued Dependencies with suitable Examples.

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Roll No. | | | | | | | | | | |

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BCA (Sem–4)

SOFTWARE ENGINEERING

Subject Code : UGCA1921

M.Code : 79725

Date of Examination : 11-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly :**

   a. Why is software engineering essential in the development of complex software systems?

   b. How do preliminary design activities differ from detailed design activities in software engineering?

   c. What is software testing, and why is it a crucial step in the software development process?

   d. Why is risk management an important aspect of software engineering processes?

   e. What is the primary role of a system analyst in the software development process?

   f. What is formal requirement specification, and when is it typically used in software engineering?

   g. Name one commonly used software cost estimation model and describe its key components.

   h. What is software design, and why is it a critical phase in the software development process?

   i. How does object oriented design differ from function-oriented design in terms of its approach to modeling and structuring software systems?

   j. What is the purpose of using metrics and indicators in software development and testing?

SECTION-B

2. *The Unified Process (UP) is a complex and comprehensive software development framework.* Describe the key principles and phases of UP, and provide a real-world example of a project where UP could be effectively applied, highlighting its benefits and challenges.

3. *Software cost estimation is a critical yet challenging aspect of project management.* Explain the various techniques and models used for software cost estimation, their strengths and weaknesses, and provide a comprehensive case study demonstrating the application of one of these methods in a real world software project.

4. Explain the key metrics used to assess the quality of requirement and design documents, and describe how they can lead to improved project outcomes. Discuss the challenges and limitations of using these metrics.

5. *Software design encompasses various activities from high-level architectural decisions to detailed component designs.* Describe the typical phases and activities involved in software design, highlighting their interdependencies and the challenges that may arise in the process.

6. *In the context of object-oriented design, explore the principles of encapsulation, inheritance, and polymorphism.* Provide examples that demonstrate how these principles promote modularity, reusability, and maintainability in software design. Additionally, discuss potential pitfalls and misconceptions that designers should be aware of when applying these principles.

7. *Software testing is a critical phase in the software development process.* Discuss the various types of software testing, their purposes and the challenges faced during testing. How do testing metrics help in measuring the effectiveness of the testing process and what role do they play in ensuring software quality?

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BCA / B.Sc. (Information Technology) (Sem–4)

WEB DESIGNING

Subject Code : UGCA-1927

M.Code : 79731

Date of Examination : 13-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Answer briefly:**

   a. Why button elements are widely used in forms?

   b. What is the difference between COLSPAN and ROWSPAN?

   c. What are the different types of form API?

   d. Define client IP address.

   e. Compare HTML vs. DHTML.

   f. What are External CSS style sheets?

   g. Explain internal working of communication on internet.

   h. How to link documents?

   i. What is date Get Method in JavaScript?

   j. What is JSON used for?

SECTION-B

2. How to create the form object. Design a login form whose specialty is the presence of password field. Write HTML code to where password field will show star to hide the characters.

3. What are the different types of browsers? Explain various browsers used to success internet.

4. Write a HTML source code to generate a student Admission form.

5. Write a note on conditional statements available in JS Explain with example.

6. **What is the difference between in the following terms:**

   a) While and do while loop

   b) Ordered and Unordered Lists

   c) Cell spacing and Cell padding

   d) Checkbox and Radio Element

7. What are frames and their types in HTML? Explain with example.

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem–4)

OPERATING SYSTEMS

Subject Code : UGCA-1923

M.Code : 79727

Date of Examination : 14-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly :**

   a) Explain the role of shell in brief.

   b) Differentiate between long-term and short-term scheduler.

   c) What is the need of CPU scheduling?

   d) Explain the term loading and linking in reference to memory management.

   e) Explain the term External fragmentation in brief.

   f) Why page size is always power of 2?

   g) Explain the term Directory structures in brief.

   h) Explain the term Rotational latency in reference to disk storage.

   i) List various characteristics of Real-time Operating system.

   j) What are the issues in multiprocessor scheduling?

SECTION-B

2. Write a detailed note on various functions of an Operating System.

3. **Explain the following scheduling algorithms with suitable example:**

   a) SJF

   b) Round-Robin

4. Explain in detail about the Segmentation scheme of Memory Management.

5. **Write a detailed note on the following terms:**

   a) Virtual Memory

   b) Address Binding

6. **Write a detailed note on following in relation to file management:**

   a) File operations

   b) Remote files systems

7. Write a detailed note on Distributed operating System.

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.–5)

PROGRAMMING IN PHP

Subject Code : UGCA1929

M.Code : 90312

Date of Examination : 26-11-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

   a) Data file

   b) foreach()

   c) Directory

   d) Scope of variable

   e) Superglobal variable

   f) GET Method

   g) HTML

   h) MySQL

   i) PHP

   j) DML

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SECTION-B

2. How we can import sound files in PHP program.

3. Explain various types of looping statements available in PHP and write a program to check input number is palindrome or not.

4. Explain various File handling function available in PHP & write a program to copy one file into another.

5. Write steps to create connection with backend in PHP. Explain with the help of an example.

6. How we can access the HTML Input components in PHP using GET and POST method?

7. Discuss Associative array in detail.

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Total No. of Questions : 07

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BCA (Sem.–5)

INTERNET OF THINGS

Subject Code : UGCA1933

M.Code : 90316

Date of Examination : 29-11-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly :**

   a. What is the role of an IoT system in today's era?

   b. Define CoAP.

   c. What do you mean by REST?

   d. What is the significance of Exclusive pair in IOT communication model?

   e. How IoT solutions are helpful in health care system?

   f. Explain network function virtualization in brief.

   g. Define term API.

   h. Define term embedded system.

   i. What do you mean by term M2M?

   j. IoT solutions are self-configuring, what is the meaning of term self-configuring here?

SECTION-B

2. Explain the Raspberry PI platform and its role in IoT applications.

3. What do you mean by IoT enabled technologies? Explain IoT enabled technologies in detail.

4. Explain domain specific- Retail and Logistics.

5. Explain Physical Design of IoT in detail.

6. Explain IoT design methodology in detail with suitable examples.

7. What do you mean by security management? Explain, how security management is important and necessary in an IoT system?

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BCA (Sem.–5)

PROGRAMMING IN JAVA

Subject Code : UGCA-1932

M.Code : 90315

Date of Examination: 05-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly:

a) What is the difference between a class and an object?

b) How arrays are declared in a Java program?

c) What are parameterized constructors?

d) What are overriding methods?

e) What is JVM?

f) What are Zageed Arrays?

g) What is Inheritance? What are the different forms of inheritance in java?

h) What is the use of the Final Variable?

i) Write down the syntax to create class and object

j) What are Random Access Files?

SECTION-B

2. Discuss the salient features of Java programming language. How Java is different from C and C++?

3. Discuss various loop statements and branching statements available in Java. Show their syntax.

4. Create an applet that receives three numeric values as input from the user and then displays the largest of these on the screen. Write a sample HTML page to include the applet.

5. What is Java I/O handling? Write about data IP and data O/P streams.

6. How can we implement multiple inheritances in java? Explain with an example.

7. a) What are the various advantages of using Package in Java?

   b) Differentiate between Applet and Applications

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Total No. of Questions : 07 Total No. of Pages : 02

BCA (Sem.–5)

LINUX OPERATING SYSTEM

Subject Code : UGCA1935

M.Code : 90318

Date of Examination : 12-12-2024

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

a) What is FIFO? Why it is called as names piples?

b) Write syntax to use of :

i) kill()

ii) raise()

iii) alarm()

iv) cat command.

c) How passwords are managed in Linux?

d) List different types of users in Linux and why these are created?

e) Discuss with names of single users, multi-users operating systems.

f) Give examples of time-sharing, multiprogramming and multi-tasking O.S.

g) How a bash shell script file is saved and executed?

h) For what purpose setUID and setGID are used? Justify with example of each.

i) Give different types of user and how different privileges are assigned to each?

j) What is 'cron' program and its applications in Linux.

SECTION-B

2. How message are transferred in inter-process call (IPC) in Linux and how FIFO is used to manage? Discuss advantages and disadvantages of FIFO in IPC.

3. Discuss grep in Linux. How it is used to display the line which does not matches with all given patterns? Justify your answer with suitable example.

4. List and explain each operation that can be performed on both user directories and files in Linux.

5. What is the significance and application of package managing in Linux? How will you install a new package using 'dpkg' and 'RPM' tools?

6. Differentiate between 'vi' editor and 'word-processor'. Explain creation of *'fileName.c'*, save it, close it and again reopen it for editing using 'vi' tool.

7. Discuss the security features provided by Linux and how these are implemented.

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Bachelor of Computer Applications (Sem.–6)

CYBER LAWS & IPR

Subject Code : UGCA1949

M.Code : 91696

Date of Examination : 15-01-2025

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. **Write briefly :**

a) Minimum contacts theory

b) Cyber defamation

c) Self-Regulation approach to privacy

d) How is trademark registered?

e) How does cyber law combat online fraud and identity theft?

f) What is the difference between privacy and security?

g) What is the purpose of trademark registration?

h) Discuss Cyber stalking and Cyber pornography.

i) Concept of privacy and threat to privacy on internet?

j) When was the IT act implemented and when was IT act amended?

SECTION-B

2. Discuss the need for intellectual property right in innovation and advancement. Explain the macro-economic impact of patent system.

3. What is copyright? How copyright is different from related rights? How long does a copyright last and the advantages of copyrights?

4. Explain the concept of cybercrimes and discuss five common types of cybercrimes, providing real-life examples for each. Discuss the impact of these cybercrimes on society.

5. Write in detail about cyber jurisprudence and its significance in cyberspace. Explain types of jurisdiction and issues of jurisdiction in cyber Space.

6. What are a trademark and its types? Explain in detail how trademark is registered and protected.

7. Explain jurisdiction under IT Act, 2000. Discuss in detail Minimum contacts theory and sliding scale theory.

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BCA (Sem.–6)

INFORMATION SECURITY

Subject Code : UGCA1948

M.Code : 91695

Date of Examination: 11-01-2025

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. Write briefly:

a) Explain symmetric key cryptography.

b) What are non-malicious program errors?

c) Discuss user Authentication.

d) Who is considered as an intruder?

e) Write a short note on IDS.

f) Define Decryption using example.

g) What is the difference between passive and active security threats?

h) What is considered as sensitive data?

i) What do we mean by risk analysis in administering security?

j) Define data integrity and confidentiality.

SECTION-B

2. Explain RSA algorithm with suitable example. Discuss difference between Substitution cipher and transposition cipher techniques.

3. What is the significance of assurance in the implementation of trusted operating systems? Provide an example of a real-world application where a trusted operating system with high assurance is crucial.

4. What is the role of a firewall in network security? How does a firewall filter incoming and outgoing network traffic to protect against unauthorized access and attacks? Provide examples of scenarios where firewalls are particularly effective.

5. What are the key challenges organizations faces when integrating databases from different sources or platforms? Explain multilevel database.

6. How do you establish and enforce a security policy within an organization? What issues security planning must address? Discuss Legal privacy and ethical issues in Computer security.

7. Discuss the role of operating systems in ensuring the security of computer systems. Describe security mechanisms used in operating systems. How are virus different from malicious code?

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BCA (Sem.–6)

INFORMATION SECURITY

Subject Code : UGCA1948

M.Code : 91695

Date of Examination: 11-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
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SECTION-A

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BCA (Sem.–06)

DIGITAL MARKETING

Subject Code : UGCA1947

M.Code :91691

Time : 3 Hrs.

Date of Examination : 08-01-2025

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. **Write briefly:**

   a. Discuss the impact of online marketing?.

   b. Differentiate between inbound and outbound marketing.

   c. Discuss the characteristics of Face-book marketing.

   d. What is search engine optimization?

   e. How to conduct a swot analysis of a website?

   f. What are the different types of keywords?

   g. What is lead generation?

   h. What is the PPC?

   i. Discuss the role of web analytics in today's business.

   j. What is content marketing?

SECTION-B

2. What are the differences between e-commerce, e-business, and e-marketing? What are the key applications for marketers utilizing digital marketing channels and platforms?

3. What do we mean by impact and importance of Interactive Platforms? What are the key types of interactions supported by Interactive Platforms?

4. ***'Search engine optimization is all about techniques to optimize the website content so that it can be matched to a specific keyword'***. Discuss.

5. What are the strategic building blocks of content marketing? Discuss various channels of distribution available to a marketer in content marketing? Give examples.

6. What is web analytics? Discuss different types of web analytics. Give examples.

7. What is on page optimization? Discuss various components of on page optimization. What is the role of keyword analytics the on page optimization?

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BCA (Sem.–6)

ANDROID PROGRAMMING

Subject Code : UGCA1943

M.Code : 91681

Date of Examination : 07-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. **Write briefly :**

a) Give name(s) of command line android developer tools.

b) Give main features of android Graphical Layout editor.

c) How Map View is used in android application?

d) How different graphical interface elements are integrated on canvas?

e) What are the uses of action-bar in android.

f) Give names of different types of 'dialogue-box' used in android.

g) Differentiate 'application security' and 'data-security' with android.

h) How Java API integrated with android stack? Give example.

i) Give name and usage syntax of four command-line android commands.

j) How JVM works as a process VM?

SECTION-B

2. How built-in applications are called using intents in android applications?

3. Explain the step-by-step procedure to install and configure android-studio on a Windows machine with compete application directory structure.

4. Explain customizing the actionable items and their applications. Also discuss how actionable items are added to application actionbar?

5. Discuss the android system architecture with its complete directory structure.

6. Explain the creation of a linear layout for user registration and login interface with its component properties.

7. Why android uses virtual machine? How ART and JIT work in virtualization for different system process management? Discuss each in details.

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