Roll No. [ ]

Total No. of Questions : 05

Total No. of Pages : 02

May June-2024

B.Com.(Hons.)/BA(JAMC)/ BHMCT/B.Sc.(Hons.)(Nutrition and Dietetics)/(AI & ML)(BT)/(FD)(G&WD)(IT)/(MLS)/ B.Voc. (Beauty Therapy and Aesthetics)/BTTM/BBA(SIM)/BCA(Sem.–1)

ENGLISH

Subject Code : BTHU103-18

M.Code : 75085

Date of Examination : 15-06-2024

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION 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 do you mean by Communication? Discuss in detail, the types of Communication.

2. Explain in detail the barriers to communication. Also, suggest the ways to overcome these barriers.

3. **Paraphrase the following:**

The proliferation of smartphones have revolutionized the way people communicate and access information. With the advent of mobile technology, individuals can now connect with others instantly, regardless of their location. Smartphones serve as multifunctional devices, providing access to social media platforms, email, web browsing, and countless apps for entertainment and productivity. As a result, people have become increasingly reliant on their smartphones for daily tasks and communication, blurring the lines between work and leisure.

4. **On the basis of your reading of the following paragraph, answer the questions:**

The melting of polar ice caps due to global warming poses significant threats to both wildlife and human populations inhabiting coastal regions. As polar ice melts, sea levels rise, increasing the risk of flooding in low-lying areas and displacing communities. Furthermore, the loss of sea ice deprives species such as polar bears and seals of crucial habitat, leading to declines in their populations and disrupting entire marine ecosystems. Additionally, the influx of freshwater from melting ice alters ocean currents and salinity levels, affecting global climate patterns and exacerbating extreme weather events. Addressing the melting polar ice caps requires urgent action to mitigate greenhouse gas emissions, promote sustainable energy sources, and implement adaptation strategies for vulnerable communities.

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A[illegible] the questions:

i) What are the primary threats posed by the melting of polar ice caps to both wildlife and human populations?

ii) How does the loss of sea ice impact marine ecosystems?

iii) What are some of the broader consequences of melting polar ice caps on global climate patterns and weather?

iv) What actions are suggested to address the issue of melting polar ice caps and its associated impacts?

v) **Write the meaning of the words:** deprives and exacerbating.

5. Write a report on the impact of urbanization on local ecosystems.

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

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 : 76962

Date of Examination : 20-06-2024

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) Information

   b) SMPS

   c) RAM

   d) Bit

   e) Utility programs

   f) Machine Language

   g) Digital Cash

   h) Applications of IT

   i) Purpose of Registers

   j) Cache memory.

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SECTION-B

2. **Explain the concept of :**

   a) Hardware and Software in a Computer System

   b) Binary Arithmetic.

3. Explain various types of devices available under Category of Input and Output Devices.

4. How Mail merge works in word processing? Explain in detail by taking suitable example.

5. Explain in detail features and various functions performed in Presentation Graphics Software.

6. **Explain the Importance of :**

   a) Security in Electronic transactions

   b) Digital Signature and Certification Authority.

7. Write a note on Big data and Internet of things.

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.–1)

PROBLEM SOLVING USING C

Subject Code : UGCA-1903

M.Code : 76963

Date of Examination : 08-06-2024

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 pseudo code? Give an example of it.

   b) How do you skip the current iteration and continue to the next one?

   c) What are symbolic constants?

   d) Define uniary operator with an example.

   e) How do you print integers with leading zeros using printf()?

   f) What is the purpose of a loop's condition?

   g) Define recursion.

   h) What is a address of a variable?

   i) Define static variable.

   j) What is union?

SECTION-B

2. Name and describe the five basic data types in C along with their memory requirements and range.

3. Write a program in C language to find the smallest number among three numbers. Also, draw its flowchart.

4. Write a program to print the following structure using for loop.

```
*
* *
* * *
* * * *
```

5. Write a program in C language to subtract two matrixes of size [3×3].

6. What is structure in C language? Create a structure for storing and accessing information [name, roll marks] of students.

7. Explain the storage classes available in C language.

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.–2)

ENVIRONMENTAL STUDIES

Subject Code : EVS/102/18

M.Code : 77421

Date of Examination : 21-05-2024

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 rain water harvesting?

   (b) What is Ecological Pyramid?

   (c) Define Food Chain.

   (d) Write two steps to control foods.

   (e) What are negative effects of deforestation?

   (f) What is population explosion?

   (g) What is sustainable development?

   (h) Give full form of AIDS.

   (i) What are effects of Acid Rain?

   (j) What is an Eco-Mark?

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SECTION-B

2. Write a note on 'Forest Conservation Act'.

3. What is the effect of depletion of ozone layer on human beings? Discuss.

4. Explain the reasons to explain why we should conserve biodiversity?

5. What is soil pollution? Discuss the measures; you will adopt in order to control soil pollution.

6. You have gone for a field visit to Wildlife Sanctuary. Prepare a sample report /register of a Campus having wildlife sanctuary.

7. Explain the types, characteristic features and functions of Aquatic Ecosystems.

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Roll No. ☐☐☐☐☐☐☐☐☐☐ Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem.–2)

FUNDAMENTALS OF STATISTICS

Subject Code : UGCA/1907

M.Code : 77415

Date of Examination : 28-05-2024

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) What are the limitations of Statistics?

   b) Discuss the demerits of secondary data.

   c) What are tally bars?

   d) State any two limitations of Tabulation.

   e) What are the advantages of diagrams?

   f) Write down the formula for Arithmetic mean in case of individual series.

   g) Define mode with the help of an example.

   h) State the significance of measure of dispersion.

   i) Define Range and Quartile Deviation.

   j) Write down the formula for Coefficient of Variation.

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SECTION-B

2. What are the essentials of a good questionnaire? What points should be taken into consideration while selecting the enumerators?

3. What do you understand by classification? Explain classification according to attributes and classification according to class-intervals.

4. In a sample study about the coffee habit in two towns, following data was observed :

   Town A : 60% people were males

   : 40% were coffee drinkers

   : 26% were male coffee drinkers

   Town B : 55%people were males

   : 30% were coffee drinkers

   : 26% were male coffee drinkers

   Tabulate the above data.

5. Calculate median from the following :

Marks:	0-5	5-10	10-15	15-20	20-25	25-30	30-35
No. of students:	4	6	10	16	12	8	4

6. Calculate Coefficient of Standard Deviation from the following data :

Mid Value:	5	15	25	35	45	55	65
frequency:	4	8	11	15	19	6	3

7. Find inter quartile deviation from the following data :

X:	0-100	100-200	200-300	300-400	400-500	500-600	600-700
f:	8	16	22	30	24	12	6

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Total No. of Questions : 07

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BCA (Sem.–2)

ENVIRONMENTAL STUDIES

Subject Code : EVS/102/18

M.Code : 77421

Date of Examination : 21-05-2024

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 rain water harvesting?

   (b) What is Ecological Pyramid?

   (c) Define Food Chain.

   (d) Write two steps to control foods.

   (e) What are negative effects of deforestation?

   (f) What is population explosion?

   (g) What is sustainable development?

   (h) Give full form of AIDS.

   (i) What are effects of Acid Rain?

   (j) What is an Eco-Mark?

SECTION-B

2. Write a note on 'Forest Conservation Act'.

3. What is the effect of depletion of ozone layer on human beings? Discuss.

4. Explain the reasons to explain why we should conserve biodiversity?

5. What is soil pollution? Discuss the measures; you will adopt in order to control soil pollution.

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BCA (Sem.–2)

OBJECT ORIENTED PROGRAMMING USING C++

Subject Code : UGCA-1909

M.Code : 77417

Date of Examination : 15-05-2024

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. Define pure virtual function.

b. What are inline functions?

c. How is the memory allocated to an object?

d. Define the constructor and give an example.

e. What are Binary files?

f. What is a function? Write the structure of the function.

g. Define Parameterized constructor.

h. How we can create a Nested class in C++?

i. Define friend function.

j. What are the various file openings Modes?

SECTION-B

2. Differentiate between virtual function and virtual class.

3. What are the different types of inheritance in C++? Explain with an example.

4. What is the importance of static keyword? Give examples.

5. Write a program to overload +operator to add two matrices.

6. Explain call by value, call by reference and call by address with examples.

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

   a. Early Binding

   b. Array of Object

   c. Data Abstraction.

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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

Time : 3 Hrs.

Date of Examination : 11-05-2024

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 short note on the following :**

   a) Convert the decimal number 156.75 into binary and octal number?

   b) What are don't care conditions?

   c) What is indirect instruction mode? Explain.

   d) Explain various modes of data transfer.

   e) What is Von Neumann Architecture?

   f) Why DMA have priority over CPU when both request a memory transfer?

   g) What is the difference between de-multiplexer and decoder?

   h) What is zero address instruction? Explain.

   i) What is virtual memory? Explain.

   j) What is hardware interrupt?

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SECTION-B

2. What do you mean by associative memory? Explain the hardware organization of associative memory.

3. What is the role of JK flip flop and its advantages over SR flip flop? Use a SR flip flop to obtain JK flip flop and give its truth table

4. What do you mean by Register Transfer Language? Discuss with the help of suitable examples various register transfer operations and micro operations.

5. Explain the working of full adder and half adder in detail with the help of truth table, logic diagram and operation table

6. What is control unit? What are the basic functions of control unit? What is the general model of control unit

7. Explain the various characteristics of RISC architecture and also explain how it is different from CISC architecture

   a) Minimize the following expression using K-map

   $$F(w,x,y,z) = \Sigma(4,5,8,12,13,14,15)$$

   b) Represent the decimal number 8620 in i) BCD, ii) Excess-3, iii) 8421 code

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.–3)

COMPUTER NETWORKS

Subject Code : UGCA-1913

M.Code : 78179

Date of Examination : 11-06-2024

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. Full duplex *vs* Half duplex

   b. Limitations of Star topology

   c. What is meaning of 10BASE5?

   d. Define protocol

   e. Attenuation

   f. Piggybacking

   g. What is the size of MAC Address, IP Address and Port Address?

   h. 3 Way handshake mode

   i. RPC

   j. Peer to Peer.

SECTION-B

2. Explain about the Synchronous and Asynchronous communication with the help of example.

3. Compare and contrast different network topologies.

4. Explain the OSI reference model with the help of a suitable diagram.

5. Discuss about the leaky bucket algorithm by taking a suitable example.

6. What is the purpose of CSMA/CD? How CSMA/CD works?

7. **Write a short note on :**

   a. CRC

   b. Cryptographic techniques.

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BCA/B.Sc.(IT) (Sem.–3)

PROGRAMMING IN PYTHON

Subject Code : UGCA1914

M.Code : 78180

Date of Examination : 13-06-2024

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. Define the scope and lifetime of variables in Python.

   b. What are three key features of Python?

   c. How do you set up environment variables for Python?

   d. Can you name three Python keywords?

   e. Explain the purpose of the write(), tell(), and seek() methods in Python file operations.

   f. What are the advantages of using functions in Python?

   g. How do you define a dictionary in Python?

   h. How do you iterate over a sequence in Python?

   i. Explain pass by value and pass by reference in Python.

   j. What is file encoding, and why is it important?

(53)-1977

SECTION-B

2. Explore the versatility of lists in Python, explaining how they can store heterogeneous data and be manipulated using various built-in functions such as append(), extend(), and remove(). Provide examples to demonstrate list operations and list comprehensions.

3. Describe the features of Python, explaining how they contribute to its popularity and versatility as a programming language?

4. Compare and contrast tuples and lists in Python, highlighting their similarities and differences in terms of mutability, syntax, and use cases. Discuss scenarios where tuples are preferred over lists and vice versa.

5. Discuss the concept of exception handling in Python, explaining how it allows programmers to gracefully handle errors and exceptions that occur during program execution? Describe the try-except block structure and demonstrate its usage with examples of handling different types of exceptions, including built-in and custom exceptions.

6. Illustrate the concept of functions in Python, highlighting their role in code organization, reusability, and abstraction. Explain how functions can improve code readability and maintainability, and provide examples to illustrate their advantages in different scenarios?

7. Explain Object-Oriented Programming (OOP) in Python, including its key concepts such as classes, objects, inheritance, encapsulation, and polymorphism. Discuss the process of designing classes and creating objects in Python, including defining attributes and methods within classes and instantiating objects from class blueprints. Provide examples illustrating the usage of classes and objects in Python programming.

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

BCA (Sem.–3)

PC ASSEMBLY & TROUBLESHOOTING

Subject Code : UGCA-1919

M.Code : 78185

Date of Examination : 19-06-2024

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) Define PCI. Introduce its different versions and their capacity of transmission.

b) Discuss DMA and interrupts.

c) Discuss serial data transmission and parallel data transmission.

d) What is the difference between hardware control and microprogrammed controls.

e) Describe the working of Inkjet and LaserJet printers.

f) How a scanner scans and digitizes a hardcopy document?

g) Define nVME. How it is different than a HDD?

h) Give different hierarchies of memory types.

i) What do you mean by ROM, PROM, EPROM, EEPROM?

j) What is a BIOS component? Explain whether it is programmable or not.

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SECTION-B

2. Explain the architecture of intel 8085 and 80386 microprocessors used in different types of computers.

3. How a hard disk is formatted? How the boot sectors are prepared to load an operating system by master boot records?

4. How to back up the user data while troubleshooting the operating systems and hardware devices?

5. What is the difference between data recovery mode and safe mode operations of computer systems?

6. If some of the system files corrupted or deleted, how you will boot your system from other sources?

7. How you will configure a single HDD computer to host two operating systems? How you will make any one of the two a default operating system? Explain the complete process to configure hardware, install and configure operating system to enable the users to use it efficiently.

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B.Sc. (G & W.D / I.T) / BCA (Sem.–3)

DATA STRUCTURES

Subject Code : UGCA-1915

M.Code : 78181

Date of Examination : 19-06-2024

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 analysis of Algorithm.

b) What is Dynamic Memory?

c) Discuss Double Linked List.

d) What is a Pointer?

e) Write a short note on Strings.

f) Explain multiple stack.

g) What is B Tree?

h) Discuss Quick sort.

i) Write concept of Graph Traversal.

j) What is Hash Collision?

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SECTION-B

2. Write an operation to Delete *n* nodes after *m* nodes of a linked list.
3. Discuss various operations on queues. How it can be implemented?
4. How a two dimensional array is represented in memory?
5. Give the brief introduction to AVL trees and its applications in data structure.
6. What is Hashing? Write the types of Hash Function.
7. Discuss use and working of Shortest Path Algorithm.

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Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem–4)

OPERATING SYSTEMS

Subject Code : UGCA-1923

M.Code : 79727

Date of Examination : 09-06-2024

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 Multiprocessor System? What are the advantages of Multiprocessors?

   b. If a process is executing in its critical section, then no other processes can be executing in their critical section. What is this condition called? Explain with the help of a diagram.

   c. What is Process Control Block in OS? Explain with the help of a diagram.

   d. What are the differences between Page table and segment table?

   e. State and explain page replacement algorithms.

   f. What are the different Accessing Methods of a File?

   g. What is Directory? What are the operations that can be performed on a Directory?

   h. How does a distributed system work? Give some examples of a distributed system?

   i. What is mobile and ubiquitous computing in distributed systems?

   j. What are basic elements or components of Linux? What is Kernel? Explain its functions.

SECTION-B

2. Consider three process, all arriving at time zero, with total execution time of 10, 20 and 30 units respectively. Each process spends the first 20% of execution time doing I/O, the next 70% of time doing computation, and the last 10% of time doing I/O again. The operating system uses a shortest remaining compute time first scheduling algorithm and schedules a new process either when the running process gets blocked on I/O or when the running process finishes its compute burst. Assume that all I/O operations can be overlapped as much as possible. Find with the help of Gantt chart for what percentage of does the CPU remain idle?

3. Draw the process state transition diagram of an OS in which (a) each process is in one of the five states and (b) only non-preemptive scheduling is used by the OS. Label the transitions appropriately.

4. Let the page fault service time be 10 ms in a computer with average memory access time being 20 ns. If one page fault is generated for every 106 memory accesses, what is the effective access time for the memory?

5. A certain computer system has the segmented paging architecture for virtual memory. The memory is byte addressable. Both virtual and physical address spaces contain 216 bytes each. The virtual address space is divided into 8 non-overlapping equal size segments. The Memory Management Unit (MMU) has a hardware segment table, each entry of which contains the physical address of the page table for the segment. Page tables are stored in the main memory and consists of 2 byte page table entries. Assume that each page table entry contains (besides other information) 1 valid bit, 3 bits for page protection and 1 dirty bit. How many bits are available in page table entry for storing the paging information for the page? Assume that page size is 512 bytes.

6. What is a File? List the various File Attributes. What are the various File Operations? What is the information associated with an Open File? What are the different Accessing Methods of a File? What are the operations that can be performed on a Directory?

7. What is Linux? Discuss its features. What is the difference between UNIX and Linux? What is Linux Kernel? Discuss its functions. What is the advantage of open source? What do you mean by Linux Shell? Explain its types. Name the Linux which is specially designed by the Sun Microsystems.

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BCA (Sem–4)

SOFTWARE ENGINEERING

Subject Code : UGCA1921

M.Code : 79725

Date of Examination : 07-05-2024

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 :**

i) What is SRS and why it is used?

ii) What is Perspective Process Model?

iii) What is Object Oriented Design?

iv) What are the metrics used for software testing?

v) How decision tree is used in Software Engineering?

vi) What are characteristics of a good software design?

vii) When and how decision tree and decision model is used?

viii) Discuss some features of a design document.

ix) What are metrics for design model?

x) What is Software Engineering?

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SECTION-B

2. What is difference between functional and non functional requirements? Explain with an example.

3. In 2017, a well-known organization 'A' is planning to develop a large product 'B'. Product 'B' would be comparable to a well-known Product 'C' but would be targeted to Operating system 'D'. At this time, no other vendor is planning to develop such product for Operating System 'D'. What life cycle model would you use? Briefly justify your answer and also explain the model.

4. **Match the following:**

(a) Unit test	(i) Requirements
(b) System test	(ii) Design
(c) Validation test	(iii) Code
(d) Integration test	(iv) System Engineering

And also, give explanation of each type of testing.

5. What is difference between Coupling and Cohesion? Explain with an example.

6. Assume that the project needs to be terminated early. In this scenario, how do you get off the spiral model? What will be the disadvantages of spiral model in this scenario?

7. What is software cost estimation and how it is measured? Give an example to support your answer.

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Total No. of Pages : 02

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BCA (Sem–4)

SOFTWARE ENGINEERING

Subject Code : UGCA1921

M.Code : 79725

Date of Examination : 07-05-2024

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 :**

   i) What is SRS and why it is used?

   ii) What is Perspective Process Model?

   iii) What is Object Oriented Design?

   iv) What are the metrics used for software testing?

   v) How decision tree is used in Software Engineering?

   vi) What are characteristics of a good software design?

   vii) When and how decision tree and decision model is used?

   viii) Discuss some features of a design document.

   ix) What are metrics for design model?

   x) What is Software Engineering?

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SECTION-B

2. What is difference between functional and non functional requirements? Explain with an example.

3. In 2017, a well-known organization 'A' is planning to develop a large product 'B'. Product 'B' would be comparable to a well-known Product 'C' but would be targeted to Operating system 'D'. At this time, no other vendor is planning to develop such product for Operating System 'D'. What life cycle model would you use? Briefly justify your answer and also explain the model.

4. **Match the following:**

(a) Unit test	(i) Requirements
(b) System test	(ii) Design
(c) Validation test	(iii) Code
(d) Integration test	(iv) System Engineering

And also, give explanation of each type of testing.

5. What is difference between Coupling and Cohesion? Explain with an example.

6. Assume that the project needs to be terminated early. In this scenario, how do you get off the spiral model? What will be the disadvantages of spiral model in this scenario?

7. What is software cost estimation and how it is measured? Give an example to support your answer.

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Total No. of Pages : 02

BCA (Sem–4)

DATABASE MANAGEMENT SYSTEMS

Subject Code : UGCA1922

M.Code : 79726

Date of Examination : 23-05-2024

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 :**

i) What are the different types of languages that are available in the DBMS?

ii) Explain the concepts of a Primary key arid Foreign Key.

iii) Why is the use of DBMS recommended? Explain by listing some of its major advantages.

iv) What are the main differences between Primary key and Unique Key?

v) What is the concept of sub-query in terms of SQL?

vi) Explain Entity, Entity Type, and Entity Set in DBMS.

vii) What is E-R model in the DBMS?

viii) What are the different type of relationships in the DBMS?

ix) Explain the terms specialization and generalization.

x) What is DKNF?

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SECTION-B

2. What are indexes? Mention the differences between the clustered and non-clustered index

3. **Consider the Sailors-Boats-Reserves Database given below with name and fields :**

S (sid, sname, rating, age)

b (bid, bname, color)

r (sid, bid, date)

Write each of the following queries in SQL alongwith the explanation for each :

(i) Find all sailor id's of sailors who have a rating df at least 8 or reserved boat with id 103.

(ii) Find the sailor id's of sailors with age over 20 who have not reserved a boat whose name includes the string "thunder".

(iii) Find the sailor id's of sailors whose-rating is better than some sailor called Bob.

(iv) Find the colors of boats reserved by Albert.

4. UPS prides itself on having up-to-date information on the processing and current location of each shipped item. To do this, UPS relies on a company-wide information system. Shipped items are the heart of the UPS product tracking information system. Shipped items can be characterized by item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the UPS system at a single retail center. Retail centers are characterized by their type, unique ID, and address. Shipped items make their way to their destination via one or more standard UPS transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique schedule Number, a type (e.g., flight, truck), and a delivery Route. Please create an Entity Relationship diagram that captures this information; about the UPS system. Be certain to indicate identifiers and cardinality constraints.

5. How database recovery is maintained in DBMS? Give a scenario and explain in detail.

6. What is concurrency management? Explain 2P in detail.

7. Explain join dependency and how they are maintained?

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

WEB DESIGNING

Subject Code : UGCA1927

M.Code : 79731

Date of Examination : 07-06-2024

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. List any four unpaired tags.
   b. How do you provide paragraph break in HTML?
   c. What do you mean by unordered list?
   d. What is the purpose of the rowspan attribute of the <td>tag?
   e. What tag is used to define a link?
   f. What is internal document reference?
   g. Describe the possible values of the rows attribute of <frameset>.
   h. What is submit button?
   i. Why JavaScript is called client side scripting language?
   j. What is Math object?

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SECTION-B

2. What is the purpose of cascading style sheets? Explain in detail.
3. **Create an HTML document to describe a table with the following contents:** The columns of the table must have the headings Pine, Maple, Oak and Fir. The rows must have the labels Average Height, Average Width, Typical Lifespan, and Leaf Type. You can make up the data cell values.
4. **Write a Javascript functions for the following :**
   a. To remove all zero values in the given array.
   b. To print an array of averages of each of the rows of the given matrix. (P.T.O)
5. Explain five basic formatting tags used to design an HTML document.
6. **Create an HTML document to :**
   a. Add images
   b. Align the images.
7. **Create an HTML document that has a form with the following widgets :**
   a. A text widget to collect the user's name
   b. **Four checkboxes, one for the following items :**
      i. Four 100-watt light bulbs for $2.39
      ii. Eight 100-watt light bulbs for $4.29.

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BCA (Sem.–5)

PROGRAMMING IN PHP

Subject Code : UGCA1929

M.Code : 90312

Date of Examination : 12-06-2024

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) How to start and finish a PHP block of code?

b) What are associative arrays in PHP?

c) What is the use of substr() funciton in PHP?

d) Write PHP statements to insert data into mysql table.

e) Define static variables.

f) WAP in PHP to find the factorial of a given number.

g) Explain foreach() loop.

h) What is the use of hidden field?

i) Define recursive function.

j) Difference between local and global variable.

SECTION-B

2. Describe different data types available in PHP.
3. Write a program to manipulate string using different types of string function in PHP.
4. Define RDBMS. How to create a connection between PHP and MySQL?
5. Write a PHP program to display patient details in a hospital.
6. Create a registration form in PHP using text boxes, buttons, radio-buttons, checkboxes.
7. Explain file handling in PHP with any suitable example.

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BCA (Sem.–5)

PROGRAMMING IN JAVA

Subject Code : UGCA1932

M.Code : 90315

Date of Examination : 18-06-2024

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) Difference between String and String Buffer class

   b) What are threads in java?

   c) Difference between throw and throws clause.

   d) What is use of final keyword?

   e) Define run time Exception.

   f) Method overriding

   g) Difference between application and applet.

   h) What is difference between interface and abstract class?

   i) What are Packages?

   j) Difference between while and dowhile loop.

SECTION-B

2. Difference between Java and C++. Highlight strength of java programming language.

3. a) Explain file input and output stream with an example.

   b) What is thread? Explain inter thread communication with an example.

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

5. What do you understand by Exception Handling? Explain Java's mechanism to handle exceptions. Write an example code to showcase use of try and catch.

6. What do you understand by the concept of Inheritance? How multiple inheritance is implemented in Java? Give simple code to explain.

7. Explain life cycle of Applet with an example.

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BCA (Sem.–5)

INTERNET OF THINGS

Subject Code : UGCA1933

M.Code : 90316

Date of Examination : 20-06-2024

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 network function virtualization in brief.

   b. What do you mean by authentication?

   c. What is the usage of APIs?

   d. Explain role of IoT systems in home automation.

   e. What do you mean by value chain?

   f. Define XaaS.

   g. How IoT solutions help in smart irrigation, explain in brief.

   h. Define NETCONF.

   i. Define role of cloud based applications in IoT system.

   j. Define Arduino.

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SECTION-B

2. Explain Physical Design of IoT in detail.

3. Propose an IoT solution for smart agriculture for a crop management (highlight the existing system where human interaction is involved and how an IoT system can overcome it), also explain how the proposed IoT solution will help the farmers to increase productivity of the crops?

4. Explain domain specific-Retail and Logistics.

5. Define need for IoT system management and explain simple network management protocols in detail.

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

7. Explain the technologies and applications of IoT.

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BCA (Sem.–5)

LINUX OPERATING SYSTEM

Subject Code : UGCA1935

M.Code : 90318

Date of Examination : 27-06-2024

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) Name two popular Linux distribution used for servers.

   b) What does CLI stand for in Linux?

   c) How do you create a new directory in Linux?

   d) What does the 'cp' command do in Linux?

   e) How do you check the kernel version?

   f) How do you use echo to print text in a shell script?

   g) What is a shell script, and how is it different from a regular program?

   h) What is the purpose of the cron utility in Linux, and how do you use it?

   i) What is kernel panic?

   j) What are permissions in Linux?

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SECTION-B

2. What are the main features that make Linux an attractive choice for both personal and business use? Discuss any potential drawbacks.

3. Explain the concept of shell functions in Linux and how they are utilized in shell scripting? Provide examples to illustrate their usage.

4. How do you troubleshoot common networking issues in Linux systems? List essential network troubleshooting commands.

5. Discuss the significance of log files in Linux system administration. What types of information do log files typically contain, and how are they managed?

6. Discuss the importance of kernel modules in Linux. Provide examples of kernel modules and their uses.

7. What is system administration in Linux and what are the key responsibilities of a Linux system administrator?

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BCA (Sem.–6)

ANDROID PROGRAMMING

Subject Code : UGCA-1943

M.Code : 91681

Date of Examination : 24-04-2024

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) List various components of a User Interface of an android project.

   b) What is the use of *AndroidManifest.xml* file?

   c) Give an example to use onStart() method.

   d) List some characteristics of mobile applications.

   e) What is the use of RadioGroup View in Android?

   f) What are the four essential activity states for an android app?

   g) Mention some key design principles for a mobile application development.

   h) Give an example to import packages in a java class file for an android application development.

   i) What do you mean by "Scalability" in mobile applications?

   j) List some advantages of Android operating system.

SECTION-B

2. Discuss various components in the directory structure of a typical Android project.

3. List and discuss various testing methodologies used for mobile applications.

4. Describe architecture and working of Android in detail.

5. What is the benefit of integrating cloud services with Android platform? Explain the integration process in detail.

6. Explain the steps involved in Mobile Software Engineering for mobile applications.

7. **Write short notes on :**

   a) Enterprise requirements in mobile applications

   b) User-interface design for mobile applications.

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B.Sc.(G&WD) (Sem.–6)

PROGRAMMING IN JAVA

Subject Code : UGCA-1932

M.Code : 92001

Date of Examination : 04-05-2024

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 features of Java?

   b) What is meant by interface?

   c) What is an Abstract class?

   d) Differences between String and String Buffer class.

   e) What is the meaning of Collections in Java?

   f) What is meant by Exception?

   g) How do we make Thread in Java?

   h) What is finally block in Java?

   i) What are string functions in Java?

   j) Explain the concepts of Multilevel Interfaces.

SECTION-B

2. What are packages? How are packages created and implemented in Java? Explain in detail with syntax and example.

3. Explain the working of Applets in Java using a suitable examples.

4. Create a Date class in Java having day, month and year data members. Create constructors for initializing data members, functions for validating date, getting values of data members and displaying the date.

5. What are the inbuilt streams available in Java I/O package? Discuss data I/P and O/P streams.

6. a) How Garbage Collection is performed in Java?

   b) Discuss the use of finalize in Java.

7. Explain various flow control statements in Java.

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BCA (Sem.6)

INFORMATION SECURITY

Subject Code :UGCA 1948

M.Code : 91695

Date of Examination : 07-05-2024

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) What are different types of Firewalls?

   b) Define Virus.

   c) List various security laws.

   d) What are models of security?

   e) What are uses of Encryption?

   f) Define Intrusion Detection Systems.

   g) Explain User Authentication.

   h) What is the difference between Security and Privacy?

   i) What is public and private key?

   j) Define E-mail Spoofing.

SECTION-B

2. What are Attacks and Threats? Explain about various mechanisms by which organizations can protect from them.

3. What are the legal privacy and ethical issues in computer security?

4. What is Cryptography? Explain the concept of Data Encryption Standard (DES) in detail.

5. What is Information Security? What is its need? Explain various principles of information security.

6. Explain the need for database security. What is database access controls in DBMS?

7. a) What is Authentication? Explain in detail how password-based and addressed- based authentication services work?

   b) Explain Relationship between Digital Signature and Digital Certificate.

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Bachelor of Computer Applications (Sem.–6)

CYBER LAWS & IPR

Subject Code : UGCA1949

M.Code : 91696

Date of Examination : 13-05-2024

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 the Indian Computer Emergency Response Team (CERT-In) under-the IT Act?

b) What is the penalty for unauthorized access to a computer system under the IT Act?

c) What is the procedure for reporting a cybercrime to law enforcement under the IT Act?

d) What is intellectual property, and how is it different from physical property?

e) What is copyright law, and what types of works are protected by copyright?

f) How long does copyright protection last, and what happens to works that are no longer protected?

g) What is fair use, and when can copyrighted material be used without permission?

h) What is the Digital Millennium Copyright Act, and how does it protect copyright owners?

i) What is the difference between a utility patent and a design patent?

j) What is trade secret law, and how does it protect confidential business information?

SECTION-B

2. What are the key drivers for the need of Cyber Laws and Regulations, and how has the rapid growth of the internet and digital technologies created new challenges for legal frameworks around the world?

3. What are the different types of cybercrimes, such as hacking, phishing, and identity theft, and how do they impact individuals, businesses, and government?

4. What are the key differences between proprietary software and open-source software, and how do these differences impact intellectual property rights and legal protections for software developers and users?

5. What is the process for filing a patent application, and what are some of the key requirements for obtaining a patent, such as novelty, non-obviousness, and usefulness?

6. What is the process for registering a trademark, and what are some of the key considerations that individuals and businesses should keep in mind when selecting and protecting their trademarks in domestic and international markets?

7. What is the right to privacy, and how has it been recognized and protected under international law, national constitutions, and court decisions?

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BCA (Sem.–06)

DIGITAL MARKETING

Subject Code : UGCA-1947

M.Code :91691

Date of Examination : 27-05-2024

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. Marketing

   b. SEO

   c. Google rankings

   d. P-O-E-M Framework

   e. Blogging

   f. Social media engagement

   g. Role of adverts

   h. Display media

   i. Paid search

   j. Linkedin marketing.

SECTION-B

2. What is the Digital Marketing landscape in India? What are the skills required in Digital Marketing?

3. Discuss the various types of social media websites. What are the do's & don'ts of social media?

4. What are the various techniques of blogging? What blogging platforms would you recommend to a new blogger?

5. What is the role of adverts in Facebook Marketing? How can the scheduling & targeting of adverts be done?

6. What is the history of web analytic tools? What are their pitfalls?

7. Discuss the various content creation tools & apps. What are the challenges of content marketing?

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