Code No. 23M102/NC/DP

Nizam College (Autonomous)
Faculty of Informatics
B.C.A. I – Semester Examinations, May - 2023
Digital Principles

Time: 3 Hours | Max. Marks: 80

Section – A

I. *Answer any EIGHT of the following questions.* [8 x 4 = 32]

1. Convert decimal number 2743 into octal, binary and hexadecimal.
2. State the properties of Boolean algebra.
3. What do you mean by canonical and standard form? Explain.
4. Describe don't care condition with an examplein K-Map.
5. Explain Binary Adder with circuit diagram.
6. What is magnitude compiler? Explain with an example.
7. Describe the operation of T flip Flop.
8. How do you analyze clocked sequential circuit?
9. Write about 4 - bit register with illustration.
10. Explain an asynchronous sequential circuit with an example.
11. When does an oscillation occur in an asynchronous sequential logic circuit?
12. Define Hazard and its types.

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) Describe about various binary codes with examples.

[OR]

(b) What are universal gates? Construct any four basic logic gates using only NAND gates.

14. (a) i) Convert the following expression into standard SOP form: ABC+A'B'+ABCD

ii) Express the Boolean function F=A+B'C in a sum of minterms (SOP).

[OR]

(b) What is Decoder? Draw 3x8 decoder circuit with AND gates and truth table.

15. (a) Design 4-bit binary counter using T flip flops.

[OR]

(b) Explain in detail about 4-bit Johnson counter.

16. (a) Draw the block diagram of asynchronous sequential circuit and explain? Also write the procedure for obtaining transition table from circuit diagram of an asynchronous sequential circuit.

[OR]

(b) Explain flow table and race Free State assignment of sequential circuit with an example.

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Code No. 23M101/NC/MFCS

Nizam College (Autonomous)
Faculty of Informatics
B.C.A. I - Semester Examinations, May - 2023
Mathematical Foundations of Computer Science

Time: 3 Hours | Max. Marks: 80

Section-A

I. Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Construct the table for $[(p \vee q) \wedge (\neg r)] \leftrightarrow q$.
2. Determine whether the implication $(\neg p \vee q) \wedge (p \vee \neg q)$ is tautology or contradiction?
3. Define quantifiers and its types.
4. Let $A = \{0,1,2\}$ and $B = \{p,q\}$ be two sets. Then find the relation R from A to B.
5. Show that the function $f(x) = x^5$ and $g(x) = x^{\frac{1}{5}}$ for $x \in R$ are inverse of one another.
6. Define the generating function and give examples to it.
7. Determine the sequence generated by using the generating function $\frac{1}{1+3x}$.
8. Define Monoid and semi group.
9. Prove that inverse of every element in group is unique.
10. Define homomorphism and order of group.
11. Define simple graph and order of graph.
12. Let G be a planar graph with 10 vertices, 3 components and 9 edges. Find the number of regions in G.

Section-B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. a) Show the equivalence $p \rightarrow (q \vee r) \Leftrightarrow (p \rightarrow q) \vee (p \rightarrow r)$.

[OR]

b) Prove that $1^2 + 2^2 + 3^2 + ... + n^2 = \frac{n(n+1)(2n+1)}{6}$ by the mathematical induction.

14. a) If E_1 and E_2 are two subsets of a universal set U, then prove that $|E_1 \cup E_2| = |E_1| + |E_2| - |E_1 \cap E_2|$.

[OR]

b) (i) Let $A = \{1,2,3,4,5,7\}$ and $B = \{2,4,6,8\}$. Then find $A \cap B$ and $A - B$.

(ii) Let $A = \{0,1,2\}$ and $B = \{p,q\}$ be two sets. Then find the relation R from A to B.

15. a) Solve the recurrence relation $a_n - 5a_{n-1} - 6a_{n-2} = 0,\ n \geq 2, a_0 = 1, a_1 = 3$.

[OR]

(b) Determine the sequence generated by using the generating function $f(x) = \frac{x^4}{1-x}$.

16. a) Draw a picture of the graph $G = (V,E)$, where $V = \{a,b,c,d,e\}$ and $E = \{\{a,b\},\{a,c\},\{a,d\},\{a,e\},\{e,c\},\{c,a\}\}$ and state whether it is directed or non- directed.

[OR]

b) Determine the in-degree and out-degree of each vertex in the graphs $G = (V,E)$, where $V = \{a,b,c,d,e\}$ and $E = \{\{a,a\},\{a,b\},\{b,c\},\{c,d\},\{e,d\},\{d,e\}\}$.

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CODE NO. 23M104/NC/IWT

Nizam College (Autonomous)
Faculty of Informatics
B.C.A. I – Semester Examinations, May - 2023
Introduction to Web Technology

Time: 3 Hours | Max. Marks: 80

Section – A

Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Explain HTTP and URL.
2. Explain ROW span and COL span.
3. Explain WWW.
4. Explain object referencing and collections.
5. Explain on focus and on blur.
6. Explain Navigator Objects.
7. Explain variables and operators with examples.
8. Explain arrays and functions with examples.
9. Explain strings and java script closures.
10. Explain XML DTD.
11. Explain Angular JS Directives.
12. Write features of Angular JS.

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) i) Explain links, images and multi media. ii) How to create forms?

[OR]

(b) Explain ordered and un ordered lists with examples.

14. (a) Explain CSS with examples.

[OR]

(b) Explain on submit, on click, on load, on error ,on mouse move, on mouse over.

15. (a) Explain conditional statements and loops with examples.

[OR]

(b) i) Explain DOM. ii) Write short notes on Event Handling.

16. (a) Explain XML Document Structure and XML Schemas.

[OR]

(b) Explain Angular JS Expressions and Modules with examples.

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Code No. 23M103/NC/Prog.C

Nizam College (Autonomous)

Faculty of Informatics

B.C.A. I – Semester Examinations, May - 2023

Programming in C

Time: 3 Hours **Max. Marks: 80**

Section – A

I. *Answer any EIGHT of the following questions.* **[8 x 4 = 32]**

1. What is the use of printf() and scanf() functions? Also explain format specifiers?
2. What is the difference between struct and union in C?
3. List the Dynamic memory management functions in C programming.
4. What is a null pointer? What is its use?
5. What is difference between compiler and interpreter?
6. How is a function declared in C language?
7. Differentiate between call by value and call by reference?
8. What is the difference between variable and array?
9. What is typecasting with syntax?
10. Define two Dimensional Array with syntax.
11. Explain the following string handling functions: (i) strcpy( ) (ii) strlen( )?
12. Explain about the fopen, fclose, feof, fprintf functions?

Section – B

II. *Answer the following questions using internal choice.* **[4 x 12 = 48]**

13. (a) What is the use of algorithms developing a program? How is it different from flowcharts?

[OR]

(b) Explain the following: (i) Machine Language (ii) Assembly Language (iii) Low and High-Level Languages (iv) Procedural and Object-Oriented Languages.

14. (a) What is an operator? Explain the relational, logical, and assignment operators in C language.

[OR]

(b) Discuss in detail with examples differences between all the storage classes.

15. (a) Write a C program to read n unsorted numbers to an array of size n and pass the address of this array to a function to sort the numbers in ascending order using bubble sort technique.

[OR]

(b) Write a program to demonstrate passing an array argument to a function. Consider the problem of finding largest of N numbers defined in an array.

16. (a) Write a C program to maintain a record of "n" student details using an array of structures with four fields (Roll number, Name, Marks, and Grade). Each field is of an appropriate data type. Print the marks of the student given student name as input.

[OR]

(b) Define the following terms i)Typedef statement ii)Enum and Explain the following functions in files: (i) fseek( ) (ii) ftell( ) (iii) rewind( ) (iv) fopen( )

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CODE NO. 23M204/NC/DC

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. II– SEMESTER EXAMINATIONS, MAY - 2023
DATA COMMUNICATIONS

TIME: 3 HOURS MAX. MARKS:80

SECTION – A

I. Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. What are the advantages of internet and explain data communications?
2. What the categories of net works?
3. Write the difference between NRZ-L and NRZ-I.
4. What are Guided and Un Guided media?
5. What are Transmission Impairments?
6. Short note analog and digital transmission.
7. How CRC is used for error checking?
8. What are the types of errors with examples?
9. Define Flow Control.
10. How is interference avoid by using FDM?
11. Differentiate between error detection and error correction.
12. What is Synchronous time division multiplexing?

SECTION – B

II. Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) Explain the OSI model of net work communication with a neat diagram.

[OR]

(b) What is the need for protocol architecture? Explain TCP/IP protocol architecture.

14. (a) Explain digital data to digital signals.

[OR]

(b) Explain about analog and digital data transmission.

15. (a) Write about error detection techniques and difference between Asynchronous and Synchronous Transmission.

[OR]

(b) Explain high level data link control (HDLC) protocol.

16. (a) Explain frequency division multiplexing.

[OR]

(b) Explain time division multiplexing.

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CODE NO. 23M204/NC/ACN

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. II– SEMESTER EXAMINATIONS, MAY - 2023
ADVANCED COMPUTER NETWORKS

TIME: 3 HOURS **MAX. MARKS:80**

SECTION – A

I. Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. How does DTN works?
2. Disadvantages of overlay networks?
3. What are high speed communication networks?
4. Disadvantages of Client/Server networks?
5. Difference between circuit and packet switching?
6. What are the benefits of ATM?
7. What is a subnet mask?
8. What are the challenges to internetworking?
9. Draw IPV4 Frame Work.
10. What are the principles of Congestion control?
11. What are the components of SNMP?
12. Uses of Domain Name System?

SECTION – B

II. Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) Explain about routing overlays ,peer to peer networks and content distribution networks?

[OR]

(b) Explain about 1) Ethernet 2) Multiple Access Networks.

14. (a) Discuss about exploring broad band Integrated service digital network layer and Adaptation layer?

[OR]

(b) Explain about requirement, traffic sizing characterstics and protocols of traffic engineering.

15. (a) Discuss about ICMP and IGMP?

[OR]

(b) Write short notes on i) DVMRP ii)MSDP

16. (a) Discuss about QOS concepts, How to achieve QOS in Congestion Control and its types?

[OR]

(b) Explain about SSL/TLS in detail?

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CODE NO. 23M202/NC/OBP

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. II – SEMESTER EXAMINATIONS, MAY - 2023
OBJECT ORIENTED PROGRAMMING

TIME: 3 HOURS **MAX. MARKS: 80**

SECTION – A

I. Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. Write structure of C++ program.
2. Discuss about procedure oriented programming.
3. What is scope resolution operator? Explain.
4. Demonstrate if..else statement with a program.
5. Explain about default arguments.
6. What is online function? Explain.
7. Write about copy constructor with the help of a program.
8. Write about inheritance with its types.
9. What is this pointer? Write its applications.
10. Illustrate polymorphism with an example.
11. Write rules for overloading operators.
12. What is a template? How does it work?

SECTION – B

II. Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) Explain C++ data types with examples.

[OR]

(b) Discuss about object oriented programming its concept, benefits and applications.

14. (a) Explain else if ladder and nested if decision statements with example programs for each.

[OR]

(b) Explain friend function with the help of example program.

15. (a) Explain overloading of Binary operators using C++ program.

[OR]

(b) Explain about multilevel inheritance with the help of C++ program.

16. (a) What is Run time polymorphism? Write a C++ program using virtual function.

[OR]

(b) What is an exception? Describe exception handling mechanisms with examples.

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CODE NO. 23M201/NC/FPS-NEW

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. II - SEMESTER EXAMINATIONS MAY – 2023
FUNDAMENTALS OF PROBABILITY AND STATISTICS

(TIME: 3 HOURS) (MAX. MARKS: 80)

Section – A

I. Answer any EIGHT of the following questions. **(8x4=32)**

1. Define population and sample
2. What is a moment?
3. Write about Kurtosis.
4. What is the probability of drawing either a king or a spade from a pack of cards?
5. Define statistical probability.
6. What is the probability of having 53 Tuesdays in a leap year and non leap year?
7. Show that Cov(aX,bY)=abCov(X,Y)
8. Ten coins are thrown simultaneously. Find the probability of getting 4 heads.
9. Define distribution function and its properties.
10. Define regression and its properties.
11. What is Positive and negative correlation?
12. Give the conditions for validity of Chi square test.

Section – B

II. Answer the following questions using internal choice. **(4x12=48)**

13. a) Calculate Quartile deviationfrom mean for the following data.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No.Of Students	6	5	8	15	7	6	3

Or

b) Define secondary data.Write about its collection.

14. a) State and prove Bayes theorem.

Or

b) Define conditional probability. A box contains 5 red balls and 3 white balls. A second box contains 4 red balls and 4 white balls. Two balls are drawn at random from the first box and placed in the second box. Then one ball is drawn at random from the second box. What is the probability that this ball is red?

15. a) (i) Find the expectation of the number on a die when thrown.
(ii) Two unbiased dice are thrown.Find the expected values of the sum of numbers of points On them.

Or

b) If X is normally distributed with mean 12 and standard Deviation 4. Find the following probabilities

a) P(X<=20) b) P(X>=20) c) P(0<=X<=12)

16. a) Calculate the Correlation coefficient to the following data.

X	23	27	28	28	28	30	30	33	35	38
Y	18	20	22	27	24	29	27	26	28	29

Or

b) A factory is producing the bolts with average diameter of 21 mm. A random sample of 25 bolts has a mean diameter of 22.6 mm and standard deviation 3mm. Can we assume that the sample has been drawn from population at 5% level of significance.

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CODE NO. 23M203/NC/DSC

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. II – SEMESTER EXAMINATIONS, MAY - 2023
DATA STRUCTURES WITH CPP

TIME: 3 HOURS **MAX. MARKS: 80**

SECTION – A

I. Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. List out the uses of Data Structures.
2. Define Abstract Data Type and mention its features.
3. Explain the advantages of linked list over array.
4. What is the linked list? List out its types.
5. Define Stack. Write the routine to pop a element from a stack.
6. List the applications of queue.
7. Explain Binary search tree.
8. Define Binary Tree with its properties.
9. Define Collision.
10. Explain the types of Graphs.
11. What is insertion sort? How many passes are required for the elements to be sorted?
12. Explain linear search.

SECTION – B

II. Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) Explain operations on array with an example.

[OR]

(b) What is a String? Explain string operations with the help of a program.

14. (a) Explain the steps involved in inserting and deleting an element into a single linked list with an example.

[OR]

(b) Differentiate between a Stack and a Queue. Explain queue operations using array.

15. (a) Describe the different hashing functions with an example

[OR]

(b) What is tree traversal. Explain the in-order, preorder and post-order traversal.

16. (a) Illustrate Breadth First Search Method with an example.

[OR]

(b) Explain Heap Sort with an example.

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Code No. 23M05/NC/OSC

Nizam College (Autonomous)
Faculty of Informatics
B.C.A. III – Semester Examinations, May - 2023
Operating System Concepts

Time: **3 Hours** **Max. Marks: 80**

Section – A

Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. What are the components of operating system?
2. What is a process? Draw and explain process state diagram.
3. Discuss the advantages of threads.
4. Explain different types of CPU Schedulers.
5. Write about hardware locks.
6. Why there is a need for deadlock avoidance. Explain.
7. Write about page table.
8. How does demand paging affect the system performance?
9. What is thrashing? How it can prevented.
10. Explain file structure with an example.
11. What is file system recovery?
12. Discuss about program threats.

Section – B

Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) What is system call? Explain various system calls with examples.

[OR]

(b) Describe any two process scheduling algorithms with examples for each.

14. (a)What is critical section problem? Explain 3 solutions with examples to solve critical section problem.

[OR]

(b) Explain Dead lock prevention techniques.

15. (a) What is continuous memory allocation? Discuss various types of continuous memory management.

[OR]

(b) Describe disk scheduling algorithms.

16. (a) Explain free space management mechanisms.

[OR]

(b) What is user authentication? Describe user authentication techniques.

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Code No. 23M303/NC/JP

Nizam College (Autonomous)
Faculty of Informatics
B.C.A. III – Semester Examinations, May - 2023
Java Programming

Time: **3 Hours** **Max. Marks: 80**

Section – A

I. ***Answer any EIGHT of the following questions.*** **[8 x 4 = 32]**

1. Write about final keyword.
2. Write short note on type casting.
3. Write about access modifiers.
4. Write a short note on interfaces.
5. Write about abstract class.
6. Define package. How to import packages in Java?
7. Write a short note on finally keyword.
8. Write about thread life cycle.
9. Write a short note on character streams.
10. Write about AWT class hierarchy.
11. How to create Checkbox using AWT?
12. Write a short note on collection framework.

Section – B

II. ***Answer the following questions using internal choice.*** **[4 x 12 = 48]**

13. (a) Explain OOPS Concepts in detail.

[OR]

(b) Discuss various operators available in Java.

14. (a) Discuss inheritance concept in detail.

[OR]

(b) Explain string class methods with suitable example.

15. (a) How to handle the exceptions in Java?

[OR]

(b) Explain byte streams in detail.

16. (a) Discuss the event handling mechanism in Java.

[OR]

(b) What is AWT? Briefly explain various AWT controls available in Java.

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Code No. 23M302/NC/AM - B/L

Nizam College (Autonomous)

Faculty of Informatics

B.C.A. III - Semester Examinations May - 2023

Applied Mathematics - I

Time : 3 Hours **Max. Marks : 80**

Section-A

I. Answer any EIGHT of the following Questions. **(8x4=32)**

1. Find the domain of the function $f(x,y)=\dfrac{1}{\log x+\log y}$.
2. Define homogeneous function of two variables and give one example to it.
3. Find $\dfrac{\partial z}{\partial y}$, where $z=e^{ax}\sin by$.
4. Find the total differential of the function $f(x,y)=8x^3y^2-x^4y^5$.
5. Describe the method of finding maxima and minima of function of two variables.
6. If $z=x^2+xy+y^2, x=s+t, y=s-t$ then find $\dfrac{\partial z}{\partial s}$.
7. Define vector space and subspace.
8. Let w be set of all vectors of the form $\begin{bmatrix} 2b+3c \\ -b \\ 2c \end{bmatrix}$. Find vectors u and v such that

   $w=span\{u,v\}$.
9. Define linear transformation and kernel of a linear transformation.
10. Define dimension of Nul A and Col A.
11. If a 4x7 matrix A has rank 3, find dim nulA, dim rowA.
12. Let $A=\begin{bmatrix} 1 & 6 \\ 5 & 2 \end{bmatrix}, u=\begin{bmatrix} 6 \\ -5 \end{bmatrix}$ and $v=\begin{bmatrix} 3 \\ -2 \end{bmatrix}$. Are u and v eigen vectors of A?

Section-B

II. *Answer the following questions using the internal choice.* **(4x12=48)**

13. (a) Verify that $\dfrac{\partial^2 u}{\partial x\partial y}=\dfrac{\partial^2 u}{\partial y\partial x}$, where $u=x\sin y+y\sin x$.

(OR)

(b) If $u=\sin^{-1}\left(\dfrac{x^2+y^2}{x+y}\right)$, show that $x.\dfrac{\partial u}{\partial x}+y\dfrac{\partial u}{\partial y}=\tan u$.

14. (a) Prove that if $y^3 - 3ax^2 + x^3 = 0$, then $\frac{d^2y}{dx^2} + \frac{2a^2x^2}{y^5} = 0$.

(OR)

b) Expand the function $f(x, y) = x^2 + xy - y^2$ by Taylor's theorem in powers of $(x-1)$ and $(y+2)$.

15. (a) i) Show that $H = span\{v_1, v_2\}$ is a subspace of V, given vectors v_1 and v_2 in a vector space V.

ii) Prove that intersection of two subspaces is again a subspace.

(OR)

(b) Find the basis for the nulspace of given matrix $A = \begin{bmatrix} 1 & 0 & -2 & -2 \\ 0 & 1 & 1 & 4 \\ 3 & -1 & -7 & 3 \end{bmatrix}$.

16. a) Find characteristic equation of $A = \begin{bmatrix} 5 & -2 & 6 & -1 \\ 0 & 3 & -8 & 0 \\ 0 & 0 & 5 & 4 \\ 0 & 0 & 0 & 1 \end{bmatrix}$.

(OR)

(b) i) Is $\lambda = 2$ an eigen value of $\begin{bmatrix} 3 & 2 \\ 3 & 8 \end{bmatrix}$? Why or why not?

ii) Prove that the eigen values of a triangular matrix are the entries on its main diagonal.

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Code No. 23M301/NC/CA

Nizam College (Autonomous)

Faculty of Informatics

B.C.A. III – Semester Examinations, May - 2023

Computer Architecture

Time: 3 Hours | Max. Marks: 80

Section – A

Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Discuss about the functional units of computer system.
2. Discuss the metrics to measure the system performance.
3. Compare RISC and CISC.
4. What is Pipelined execution? Discuss its advantages.
5. Discuss about Data path.
6. Write the steps to execute a complete instruction.
7. Discuss about different types of ROM.
8. Write notes on DVD technology.
9. Discuss about magnetic tape devices.
10. What are I/O devices? Explain.
11. Describe about Interface circuits.
12. Write notes on USB.

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) Explain briefly about Instructions and Instruction sequencing.

[OR]

(b) Discuss about various addressing modes.

14. (a) Discuss briefly about Hardwired control and Microprogrammed control.

[OR]

(b) Explain about Data hazard and Instruction hazard.

15. (a) Explain about Cache memory and its mapping functions.

[OR]

(b) Explain various types of magnetic and optical storage devices.

16. (a) Explain about Accessing I/O devices.

[OR]

(b) Discuss briefly about SCSI Standard I/O Interface.

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Code No. 23M304/NC/DD

Nizam College (Autonomous)
Faculty of Informatics
B.C.A. III – Semester Examinations, May - 2023
Database Design

Time: 3 Hours | Max. Marks: 80

Section – A

I. *Answer any EIGHT of the following questions.* [8 x 4 = 32]

1. What is three tier architecture in DBMS?
2. Write short notes on common database models.
3. What are constraints in ER model?
4. Write the steps to convert an ER diagram to a relation.
5. Write about 2^{nd} normal form.
6. What are the basic aggregate functions?
7. What is the need for ACID properties in DBMS?
8. Write about concurrent transaction in a database.
9. Explain briefly about MAC.
10. Write short notes on parallel database with an example.
11. What are the different types of distributed databases?
12. Write short notes on middle ware systems.

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) Explain about different types of databases and models with their advantages and limitations.

[OR]

(b) Explain in detail three schema architecture with a neat diagram.

14. (a) Explain relational model in detail with suitable examples.

[OR]

(b)Discuss about 1NF,2NF,3NF,4NF and BCNF with suitable examples.

15. (a) Explain transactions and schedules in detail with suitable examples.

[OR]

(b) Explain Authentication and Authorization in detail with suitable illustration.

16. (a) Explain distributed databases and types of distributed databases.

[OR]

(b) Describe the collaborating server systems with suitable examples.

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CODE NO. 23M402/NC/AI

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. IV– SEMESTER EXAMINATIONS, MAY - 2023
ARTIFICIAL INTELLIGENCE

TIME: 3 HOURS **MAX. MARKS: 80**

SECTION – A

I. Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. What are the applications of AJ?
2. What are the rules for production system?
3. Write about Production System characteristics.
4. What is a game playing? What are the characteristics of game playing.
5. What are the approaches the knowledge representation?
6. Write about Natural Deduction.
7. What are the implementation issues of Non monotonic reasoning?
8. Write about justification Based Truth Maintenance Systems in DFS.
9. Write about certainly factors and rule-Based system.
10. What is Rote Learning? What are the capabilities of Rote Learning?
11. What are the applications of Expert System?
12. What are the different types of Expert System Shell?

SECTION – B

II. Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) Briefly explain about tic-tac algorithm.

[OR]

(b) Discuss the Problem Reduction algorithm in Heuristic search techniques.

14. (a) Explain about Min-Max search procedure.

[OR]

(b) Discuss the Representation Instance and ISA Relationships.

15. (a) Explain the implementation of Breadth First Search.

[OR]

(b) Discuss about probability and Bayes theorem.

16. (a) Briefly explain the Learning in problem solving.

[OR]

(b) Discuss representation of domain knowledge.

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CODE NO. 23M204/NC/CN

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. IV – SEMESTER EXAMINATIONS, MAY - 2023
COMPUTER NETWORKS

TIME: 3 HOURS MAX. MARKS: 80

SECTION – A

I. Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Discuss the services of LLC and MAC layers.
2. Differentiate between unicast, multicast and broadcast addresses.
3. Differentiate between CSMA/CD and CSMA/CA.
4. Write notes on CIDR.
5. Explain about BOOTP protocol.
6. Discuss about IGMP protocol.
7. Explain about Timer management.
8. Write short notes on TCP State diagram.
9. Discuss about BGP.
10. Explain briefly about IO Multiplexing.
11. Discuss about DNS.
12. Discuss about FTP.

SECTION – B

II. Answer the following questions using internal choice. [4 x 12 = 48]

13. (a) Compare and contrast Switched, Fast and Gigabit Ethernet.

[OR]

(b) Explain the architecture of Wired LAN IEEE 802.3 with a neat diagram.

14. (a) What is Logical addressing? Explain the concept of Subnetting and Supernetting with an example.

[OR]

(b) Explain about Distance Vector Routing.

15. (a) What is TCP? How it is different from UDP and explain Window management mechanisms of TCP.

[OR]

(b) Explain about primitive and advance socket system calls.

16. (a) Explain about UDP socket system calls and Socket options.

[OR]

(b) Explain about Simple Mail Transfer Protocol in detail.

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CODE NO. 23M404/NC/SE

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. IV – SEMESTER EXAMINATIONS, MAY - 2024
SOFTWARE ENGINEERING

TIME: 3 HOURS MAX. MARKS: 80

SECTION – A

I. Answer any EIGHT of the following questions. [8 x 4 = 32]

1. What is unit test?
2. Explain about regression testing.
3. Discuss about spiral model.
4. Discuss about process of requirement change management.
5. What is layer architecture style?
6. Write a short notes on UML relationships.
7. Discuss about architectural design principles.
8. What is Feasibility study?
9. What is Cost benefit analysis?
10. What is Stakeholder analysis?
11. How SRS is important in SDLC?
12. Discuss about state machine diagram.

SECTION – B

II. Answer the following questions using internal choice. [4 x 12 = 48]

13. (a) Write Code of Ethics and Professional Practice.

[OR]

(b) Explain about Software Development Process and its Stages.

14. (a) Write about Requirements Management Planning.

[OR]

(b) Write about IEEE Standard of Software Requirement Specifications.

15. (a) Write about Cloud Computing in detail.

[OR]

(b) What is Data Modeling ? What is the Comparison between Top down Structured and Object Analysis?

16. (a) Write about Software Quality Assurance.

[OR]

(b) Write about Software Testing and System Testing?

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CODE NO. 23M4SI2/NC/PI

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. IV-SEMESTER EXAMINATIONS, MAY- 2023
PROFESSIONAL INTELLIGENCE

TIME: 2 HOURS MAX. MARKS:40

SECTION – A

I. Answer any FOUR questions. [4X4=16]

1. Define Conflicts and its causes.
2. Write about the dangers of not having self confidence.
3. Write a three minutes speech about controlling sound pollution in colleges.
4. Write about the importance of grooming interviews.
5. Write a few benefits of Social media for students.
6. Explain five one word substitutes of your choice.
7. Give some merits of Instagram for the students.
8. Define Content development for the software companies.

SECTION – B

II. Answer the following questions using internal choice. [3X8=24]

9. a Write a speech about Young successful professionals.

OR

b. Explain few opportunities in the field of Social Media for youth.

10. a. Prepare your CV.

OR

b. Discuss the demerits of bad Grooming.

11. a. Write about 'Wellness is Wealth'.

OR

b. Mention the methods of developing content for the Student beneficial Websites.

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CODE NO. 23M403/NC/DSUP

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. IV – SEMESTER EXAMINATIONS, MAY-2023
DATA SCIENCE USING PYTHON

TIME: 3 HOURS MAX. MARKS:80

SECTION – A

I. Answer any EIGHT of the following questions. [8 x 4 = 32]

1. What is data science? What are data science components?
2. What are the differences between data science and business intelligence?
3. What are the challenges of data science?
4. Discuss about nested if conditions in python?
5. Discuss about functions in python?
6. Write any four string functions in python.
7. How to create nested lists?
8. What is dictionary and how to create dictionary?
9. What is immutability of strings in python?
10. What is the purpose of numpy library?
11. What computations can perform on numpy library?
12. What is data frame?

SECTION – B

II. Answer the following questions using internal choice. [4 x 12 = 48]

13. (a) What are the tools and challenges of data science? List applications of data science?

[OR]

(b) What are the features of python? Explain about python interpreter?

14. (a) Explain about different looping statements in python with example program?

[OR]

(b) What are expressions, input and output statements in python? Explain about operator precedence

15. (a) How to create lists, tuples and dictionaries? Discuss about the differences between lists, tuple and dictionaries?

[OR]

(b) What is tuple? Discuss tuple operations and tuple methods?

16. (a) How to create numpy array? Write a python program to sort numpy array and fancy indexing?

[OR]

(b) Illustrate aggregation and grouping in pandas with and example.

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CODE NO. 23M401/NC/D&CC

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. IV - SEMESTER EXAMINATIONS, MAY - 2023
DISTRIBUTED AND CLOUD COMPUTING

TIME: 3 HOURS MAX. MARKS: 80

SECTION – A

I. Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Mention the challenges in Distributed System?
2. Write the different trends in Distributed System?
3. Define Heterogeneity?
4. What are the different types of Clouds?
5. What are the basic principles of Cloud Computing?
6. What are layers of Cloud?
7. What is Hybrid Cloud?
8. What is mean by Virtualization?
9. Discuss VMware features.
10. What are the roles available in Windows AZURE?
11. What type of data is stored in public cloud?
12. State the importance of buffer in AWS?

SECTION – B

II. Answer the following questions using internal choice. [4 x 12 = 48]

13. (a) Discuss the different trends in Distributed System in detail?

[OR]

(b) What are different types of models for developing distributed systems? Explain each model in detail.

14. (a) What are the Roots of Cloud Computing? Answer in detail.

[OR]

(b) List the challenges and security risks in cloud computing?

15. (a) Write short notes on 1) Levels of Virtualization 2) Virtualization of CPU.

[OR]

(b) Write about Virtualization on server consolidation in data centers?

16. (a) Explain about Data Center Design and Interconnection Networks.

[OR]

(b) 1) Explain the features of the Azure cloud Platform.

2) What are the challenges of resource management in cloud computing?

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CODE NO. 23M402/NC/AI

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. IV– SEMESTER EXAMINATIONS, MAY - 2023
ARTIFICIAL INTELLIGENCE

TIME: 3 HOURS MAX. MARKS: 80

SECTION – A

I. Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. What are the applications of AJ?
2. What are the rules for production system?
3. Write about Production System characteristics.
4. What is a game playing? What are the characteristics of game playing.
5. What are the approaches the knowledge representation?
6. Write about Natural Deduction.
7. What are the implementation issues of Non monotonic reasoning?
8. Write about justification Based Truth Maintenance Systems in DFS.
9. Write about certainly factors and rule-Based system.
10. What is Rote Learning? What are the capabilities of Rote Learning?
11. What are the applications of Expert System?
12. What are the different types of Expert System Shell?

SECTION – B

II. Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) Briefly explain about tic-tac algorithm.

[OR]

(b) Discuss the Problem Reduction algorithm in Heuristic search techniques.

14. (a) Explain about Min-Max search procedure.

[OR]

(b) Discuss the Representation Instance and ISA Relationships.

15. (a) Explain the implementation of Breadth First Search.

[OR]

(b) Discuss about probability and Bayes theorem.

16. (a) Briefly explain the Learning in problem solving.

[OR]

(b) Discuss representation of domain knowledge.

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Code No. 23M501/NC/PUA

Nizam College (Autonomous)
Faculty of Informatics
B.C.A. V – Semester Examinations, May - 2023
Programming Using ASP.NET

Time: 3 Hours | Max. Marks: 80

Section – A

Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Write down features of ASP.NET?
2. What is NameSpace?
3. Briefly explain any two server controls in ASP.NET
4. What is role of Validation controls in Webpage?
5. Explain four properties of Drop Down List.
6. Which are the different ways in which you can separate code and content in ASP.NET?
7. What is the predominant distinction between HTML and XML?
8. What is XML?
9. What is meant by validation?
10. Write differences between Grid view and Datagrid.
11. Write the uses of Repeater Control.
12. How to create a user registration form in ASP.NET?

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) What is Web Server? Explain about APACHE and IIS Servers.

[OR]

(b) What is CLR? Explain in detail role of CLR in ASP.NET.

14. (a)Explain Validation Controls in ASP.NET with example.

[OR]

(b) Explain different types of directives in ASP.NET and write advantages of directives.

15. (a) What is HTML and explain the HTML server controls in ASP.NET?

[OR]

(b) What are ASP.NET Validation Controls and explain with example?

16. (a) What is the user Control and explain the steps in User Control?

[OR]

(b) What are Data Bound Controls and Explain in detail?

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Code No. 23M504/NC/SQT

Nizam College (Autonomous)

Faculty of Informatics

B.C.A. V – Semester Examinations, May - 2023

Software Quality Testing

Time: 3 Hours | Max. Marks: 80

Section – A

I. *Answer any EIGHT of the following questions.* [8 x 4 = 32]

1. Discuss about Quality Standards
2. Discuss about Information engineering.
3. Explain about cost of quality.
4. What are software metrics? Discuss about its categories.
5. Discuss about Cyclomatic Complexity.
6. Discuss about Test Adequacy Criteria.
7. Explain about Testing and Debugging goals.
8. Describe about Process and Engineering.
9. Write about Test management.
10. What are Measurements and Milestones?
11. When is testing complete?
12. What are different types of reviews?

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) Explain about Total Quality Management Principles in detail.

[OR]

(b) Explain how Quality can be improved with methodologies.

14. (a) What are Function Points and Feature Points ? Explain how to compute Function points and Feature points.

[OR]

(b) Explain different levels of testing and different types of testing.

15. (a) What is a test plan? Explain about Test plan attachments.

[OR]

(b) Explain the role of three groups in Test planning and Policy development.

16. (a) Explain in detail about Software Configuration management process.

[OR]

(b) What are different types of reviews? Explain various components of a review plan.

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Code No. 23M503/NC/DS-R

Nizam College (Autonomous)

Faculty of Informatics

B.C.A. V – Semester Examinations, May - 2023

Data Science Using R

Time: 3 Hours

Max. Marks: 80

Section – A

I. *Answer any EIGHT of the following questions.* [8 x 4 = 32]

1. Discuss the comparison between Python and R programming.
2. What is a package in R?
3. Explain the procedure to write R script to combine two data sets.
4. How to creates objects in R. explain with example?
5. How do you reorder data frames in R programming?
6. Explain R-Matrix in R.
7. Define data distribution.
8. Write a R-Program for creating a sequence of values between -10 to 10 with a difference of 0.1.
9. Discuss about cumulative statistics.
10. Explain Bar charts with example.
11. What are the advantages of data visualization?
12. Explain simple regression.

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) What is R-Programming? Discuss history and features of R- programming in detail.

[OR]

(b) Discuss about different packages in R-Programming in detail.

14. (a)Define R-list. Explain how to create, insert and access elements from the list discuss with example.

[OR]

(b) Define Vector. Explain various types of vectors with example.

15. (a)Explain summary statistics for vectors in detail with example.

[OR]

(b) Define Histogram. Discuss how to create histogram with the help of various parameters. (any 5)

16. (a) Explain pie charts and write a program for creating Pie chats using specified data.

[OR]

(b) Explain in detail about K-mean clustering in R using data set.

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Code No. 23M502/NC/UP

Nizam College (Autonomous)
Faculty of Informatics
B.C.A. V – Semester Examinations, May - 2023
Unix Programming

Time: 3 Hours

Max. Marks: 80

Section – A

Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Write different UNIX commands.
2. Explain VI editor.
3. Explain security and file permissions.
4. Explain command execution and line editing.
5. Explain variables and predefined variables.
6. How to display beginning and end of files, also explain cut and paste.
7. Explain associative arrays in awk.
8. Explain strings in awk.
9. Explain awk and sed applications.
10. Explain the overview of PHP.
11. Explain operations and expressions in PHP.
12. Explain Files in PHP.

Section – B

Answer the following questions using internal choice. [4 x 12 = 48]

13. (a) Explain the architecture and file system of UNIX.

[OR]

(b) Explain file handling utilities and disk utilities. ii) Write different net working commands.

14. (a) i) How to concatenate and compare files. ii) Explain UNIX session and sorting.

[OR]

(b) i) Explain filters and pipes. ii).Explain shell/environment customization.

15. (a) Explain awk execution, scripts, operations, patterns and actions.

[OR]

(b) i) Explain grep operation, grep family and searching a file content.

ii) Explain sed scripts, operation and address.

16. (a) i) Explain syntactic characteristics of PHP. ii) Explain functions and pattern matching.

[OR]

(b) i) Explain different control statements in PHP. ii) Explain cookies and session tracking.

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Code No. 23M505/NC/MAD

Nizam College (Autonomous)

Faculty of Informatics

B.C.A. V – Semester Examinations, May - 2023

Mobile Application Development

Time: 3 Hours | Max. Marks: 80

Section – A

I. Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Write short notes on Antennas.
2. Discuss about FDMA.
3. Compare Infrared with radio transmission.
4. Discuss IP packet delivery.
5. Explain about Adhoc networks?
6. Discuss about transmission timeout freezing.
7. Describe the basic content of WML Document model.
8. Write about Wireless binary extensible markup language.
9. Write about application security.
10. Write short notes on selected WML elements.
11. What is WML script? Discuss its purpose.
12. What is Push messaging?

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) What is Spread Spectrum and Signal Propagation? What are the main benefits of a spread spectrum? How can spreading be achieved?

[OR]

(b) Discuss about IEEE802.11 and Bluetooth Architecture.

14. (a) What is IP packet delivery? Discuss about Agent Advertisement, Discovery and Registration.

[OR]

(b) Explain about Transmission timeout freezing and transaction oriented TCP.

15. (a) Give an overview of WAP Architecture and its Components.

[OR]

(b) Discuss about WML events, task and binding variables.

16. (a) Discuss about Structured Usability methods and User Interface Design Issues.

[OR]

(b) Discuss about Wireless Telephony applications in detail.

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Nizam College (Autonomous) Code No. 23M507/NC/DM

Faculty of Informatics

B.C.A. V – Semester Examinations, May - 2023

Data Mining

Time: 3 Hours Max. Marks: 80

Section – A

I. *Answer any EIGHT of the following questions.* [8 x 4 = 32]

1. Define data mining
2. Describe different types of Data.
3. What are the kinds of patterns can be mined.
4. Discuss basic statistical description of data.
5. Describe closed item set with an example?
6. What is frequent item set with an example?
7. Discuss about classification and prediction.
8. Discuss about Decision tree with a simple example.
9. State and prove Baye's Theorem.
10. Write a short note on cluster analysis.
11. Discuss about Partitioning cluster method.
12. Write a short note on outliers.

Section – B

II. *Answer the following questions using internal choice.* [4 x 12 = 48]

13. (a) Explain about major issues in data mining.

[OR]

(b) Illustrate Data Mining Tasks.

14. (a) Explain about association rule mining as two step process with example.

[OR]

(b) Explain about Frequent item set mining methods.

15. (a) Explain about Rule based classification with example.

[OR]

(b) Explain about Support vector machine with example.

16. (a) Explain Density based cluster method with example.

[OR]

(b) Explain about Data mining trends.

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CODE NO. 23M603/NC/BDA

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. VI – SEMESTER EXAMINATIONS, MAY - 2023
BIG DATA ANALYTICS

TIME: 3 HOURS **MAX. MARKS: 80**

SECTION – A

I. Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. What is parallel processing in big data?
2. How cloud computing and big data related?
3. What is big data?
4. Discuss about the history of hadoop.
5. What is the functionality of combiner in Mapreduce?
6. Draw a simple diagram for Map reduce job.
7. What is the purpose of job-tracker in mapreduce?
8. Differentiate between name node and secondary name node functionality.
9. Discuss about the HDFS blocks.
10. What are the benefits of Pig Latin?
11. What is the purpose of Hbase in hadoop?
12. List any three HDFS file operations.

SECTION – B

II. Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) Discuss the problems with old technologies and key trends with big data.

[OR]

(b) Explain predictive analytics in big data. How hadoop helps in processing big data?

14. (a) Explain about the hadoop ecosystem.

[OR]

(b) Explain about Map reduce framwork.

15. (a) Explain about Hadoop distributed file system with neat diagram.

[OR]

(b) Explain job execution steps using name node, job-tracker and map reduce jobs

16. (a) Explain storage system of Hadoop HDFS, Hive and Hbase.

[OR]

(b) Explain data transmission with Scoop and PIG.

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NIZAM COLLEGE (AUTONOMOUS)

FACULTY OF INFORMATICS

B.C.A. VI - SEMESTER EXAMINATIONS, MAY - 2023

INTERNET OF THINGS

TIME: 3 HOURS **MAX. MARKS: 80**

SECTION – A

I. Answer any EIGHT of the following questions. **[8 x 4 = 32]**

1. Define IoT with an example.
2. Write about IoT communication modes.
3. Define Raspberry pi.
4. What is the role of Cloud Server in IoT.
5. Interfacing external gadgets using Pi.
6. Define about reading inputs from pins.
7. Write about Apl.
8. Define RESTful With API.
9. What are Command line Arguments?
10. Explain about Python on Pi.
11. What are controlling outputs using Raspberry pi?
12. Write about Audrino for Pi.

SECTION – B

II. Answer the following questions using internal choice. **[4 x 12 = 48]**

13. (a) Explain wireless sensor networks.

[OR]

(b) How does IoT Influence the development of Smart cities?

14. (a) What are the IoT physical devices and end points?

[OR]

(b) Explain about Raspberry PI Interfaces.

15. (a) Explain about python web application framework with an example.

[OR]

(b) Write briefly about Communication API's in Cloud.

16. (a) Explain about Linux distributions for Pi.

[OR]

(b) Write briefly about File system using Pi and Linux.

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CODE NO. 23M604/NC/NS/BACKLOG

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. VI – SEMESTER EXAMINATIONS, MAY - 2023
NETWORK SECURITY (ELECTIVE-II)

TIME: 3 HOURS MAX. MARKS:80

SECTION – A

I. **Answer any EIGHT of the following questions.** **[8 x 4 = 32]**

1. Write about worms and viruses.
2. What is one time pads?
3. Define steganography.
4. What is cipher feed back?
5. What is public key length?
6. Write about synchronous stream.
7. Define message authentication code (MAC).
8. Write the features of AES.
9. What is triple DES?
10. Define one way hash functions.
11. Write about ISO Authentication frame work.
12. What is Kerberos protocol?

SECTION – B

II. **Answer the following questions using internal choice.** **[4 x 12 = 48]**

13. (a) Explain types of attacks, IP Spooling and transposition ciphers.

[OR]

(b) Explain substitution, and also how to communicate using public key cryptography.

14. (a) i) How to generate keys, transferring keys, verifying and storing keys?

ii) Explain key management store, back up, life time and destruction.

[OR]

(b) Explain electronic code book, block replay, cipher block chaining and self- synchronizing.

15. (a) Explain digital signature and RSA algorithm?

[OR]

(b) Explain Diffie-Hellman key exchange algorithm.

16. (a) Explain secure hash algorithm and ISDN.

[OR]

(b) Explain web security protocols, electronic payments, e-cash and secure electronic transfer (SET).

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CODE NO. 23M601/NC/IS

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A.VI – SEMESTER EXAMINATIONS, MAY - 2023
INFORMATION SECURITY

TIME: 3 HOURS MAX. MARKS: 80

SECTION – A

I. Answer any EIGHT of the following questions. [8 x 4 = 32]

1. Write the characteristics of information.
2. Explain about security structure.
3. Discuss various softwares used for system security.
4. What are the ethical issues related to information security.
5. What are the different types of risks for information security?
6. Write about various risk control strategies.
7. What are the security policies in information security?
8. What are the best practices for security policy?
9. What is VPNs..
10. Write the features of intrusion prevention system.
11. What are the applications of cryptography?
12. Write about different branches of digital forensics.

SECTION – B

II. Answer the following questions using internal choice. [4 x 12 = 48]

13. (a) Draw and explain NSTISSC security model.

[OR]

(b) Describe in detail about the Security Systems Development Life Cycle.

14. (a) Discuss about international laws related to information security.

[OR]

(b) Explain quantitative risks and control strategies.

15. (a) What is security education and training in information security.

[OR]

(b) What is a Firewall? Explain its working with illustrations.

16. (a) Explain about access control devices in intrusion detection system.

[OR]

(b) Explain in brief about protocols for secure communications.

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CODE NO. 23M602/NC/AJ

NIZAM COLLEGE (AUTONOMOUS)
FACULTY OF INFORMATICS
B.C.A. VI– SEMESTER EXAMINATIONS, MAY - 2023
ADVANCED JAVA

TIME: 3 HOURS MAX. MARKS:80

SECTION – A

1. **Answer any EIGHT of the following questions.** [8 x 4 = 32]
   1. Explain Statement and Prepared Statement.
   2. Explain the components of JDBC.
   3. How to work with ResultSet interface?
   4. Explain Hidden form field.
   5. What are the advantages, disadvantages and use of cookies?
   6. What are the features of servlet?
   7. Explain Scriptlet and expression.
   8. Explain advantages, disadvantages, and use of bean tag.
   9. Explain set property and get property.
   10. Describe the features of Hibernate.
   11. Explain resource bundle class.
   12. Explain Internationalization.

SECTION – B

2. **Answer the following questions using internal choice.** [4 x 12 = 48]

3. (a) i) Write a JDBC Program to read the Data from Database.

   ii) Explain JDBC Architecture.

   [OR]

   (b) Explain types, advantages, disadvantages, and use of JDBC Drivers.

4. (a) i) Explain the advantages of servlet over CGI ? ii) Explain session tracking mechanism.

   [OR]

   (b) i) Explain java x . servlet package and java x . servlet. http package.

   ii) Explain Servlet life cycle.

5. (a) i) Explain the advantages of JSP over servlet ?ii)Explain JSP Architecture.

   [OR]

   (b) Explain Scripting tags and action tags in JSP.

6. (a) i) Explain about networking tag in JSTL.

   ii) Write a short note on Java Server Faces.

   [OR]

   (b) Explain about JSTL.SQL Tags, JSTL Xml tags.

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