डेटा एन्क्रिप्शन क्या है? ई-वाणिज्य में यह क्यों महत्वपूर्ण है? सममित और असममित एन्क्रिप्शन के बीच अंतर करें।

9. What is a digital signature? Explain how digital signatures ensure data integrity and authentication. 7

डिजिटल हस्ताक्षर क्या है? डिजिटल हस्ताक्षर डेटा की अखंडता और प्रमाणीकरण कैसे सुनिश्चित करते हैं?

BCA NEP

Roll No. ..... Total Pages : 4

NASV/M-25 **24721**

E-COMMERCE

Paper – B23–VAC–417

Time : Three Hours] [Maximum Marks : 35

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

नोट : कुल **पांच** प्रश्न कीजिए। प्रश्न सं. 1 अनिवार्य है। प्रत्येक इकाई से **एक** प्रश्न चुनते हुए, **चार** अन्य प्रश्न कीजिए।

Compulsory Question (अनिवार्य प्रश्न)

1. Answer the following questions in brief :
   (a) What is e-commerce? How does it differ from e-business?
   (b) Explain the role of online booking and scheduling in the service industry.
   (c) What is a payment gateway? How does it facilitate online transactions?
   (d) What are the challenges and risks associated with managing a virtual organization? (4×1.75=7)

निम्नलिखित प्रश्नों का उत्तर संक्षेप में दीजिए :

(क) ई-वाणिज्य क्या है? यह ई-व्यवसाय से कैसे भिन्न है?

(ख) सेवा उद्योग में ऑनलाइन बुकिंग और सारणी की भूमिका की व्याख्या कीजिए।

(ग) भुगतान गेटवे क्या है? यह ऑनलाइन लेन-देन को कैसे सुविधाजनक बनाता है?

(घ) किसी आभासी संगठन के प्रबंधन से जुड़ी चुनौतियाँ और जोखिम क्या हैं?

UNIT–I (इकाई–I)

2. (a) What motivates businesses to adopt online transaction models? 3.5

(b) Compare the advantages and disadvantages of pure online *vs.* brick-and-click businesses. 3.5

(क) व्यवसायों को ऑनलाइन मॉडल अपनाने के लिए क्या प्रेरित करता है?

(ख) शुद्ध ऑनलाइन **बनाम** ब्रिक-एंड-क्लिक व्यवसायों के लाभ और हानि की तुलना करें।

3. Define and differentiate between B2B, B2C, C2C, and C2B models of e-commerce. 7

ई-वाणिज्य के B2B, B2C, C2C और C2B मॉडल को परिभाषित करें और उनके बीच अंतर करें।

UNIT–II (इकाई–II)

4. (a) How does the Internet serve as a backbone for online business operations? 3.5

(b) What is middleware? Explain its function in integrating business applications. 3.5

(क) इंटरनेट ऑनलाइन व्यापार संचालन के लिए रीढ़ की हड्डी के रूप में कैसे काम करता है?

(ख) मिडलवेयर क्या है? व्यावसायिक अनुप्रयोगों को एकीकृत करने में इसके कार्य की व्याख्या करें।

5. Compare and contrast credit cards, digital wallets, and net banking as payment methods. 7

भुगतान विधियों के रूप में क्रेडिट कार्ड, डिजिटल वॉलेट और नेट बैंकिंग की तुलना और अंतर कीजिए।

UNIT–III (इकाई–III)

6. What are the benefits of integrating e-commerce with supply chain and inventory systems in manufacturing? 7

विनिर्माण में आपूर्ति श्रृंखला और इन्वेंट्री प्रणाली के साथ ई-वाणिज्य को एकीकृत करने के क्या लाभ हैं?

7. What are the key components of a successful e-commerce retail platform? Explain each in brief. 7

एक सफल ई-वाणिज्य खुदरा प्लेटफार्म के मुख्य घटक क्या हैं? प्रत्येक की संक्षेप में व्याख्या कीजिए।

UNIT–IV (इकाई–IV)

8. What is data encryption? Why is it important in e-commerce? Differentiate between symmetric and asymmetric encryption. 7

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24718

NASV/M-25

LOGISTIC MANAGEMENT

Paper : B23-VAC-414

Time : Three Hours] [Maximum Marks : 35

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

Compulsory Question

1. Short Answer Type :

(a) Define logistics and its components.

(b) What is the role of IT in logistics management?

(c) Mention two functions of a warehouse.

(d) Define EOQ with an example.

UNIT–I

2. Explain the objectives, components, and significance of logistics management.

3. Describe the logistics performance cycle and the role of customer service in global logistics.

UNIT–II

4. What are the principles of transport and how does transport infrastructure impact logistics?

5. Explain the concept of strategic storage and warehouse functionality.

UNIT–III

6. Describe the role of personal selling and publicity in logistics communication.

7. Discuss unconventional promotional media and their impact on logistics operations.

UNIT–IV

8. Explain different types of inventory with examples and discuss their relevance in logistics.

9. What is EOQ? Explain its formula with a numerical example.

Roll No. ..... Total Pages : 2

NBCA/M-25 **2327**

FRONT-END DEVELOPMENT

Paper–CC-B4:B23-CAP-402

Time Allowed : 3 Hours] [Maximum Marks : 50

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

Compulsory Question

1. Write short notes on the following : $4 \times 2\frac{1}{2} = 10$

   (a) Explain type conversion functions in JavaScript.

   (b) Differentiate Event Bubbling and Capturing.

   (c) Explain Regular expression methods with example.

   (d) Is jQuery is a replacement for JavaScript ? Explain with example.

UNIT–I

2. Explain the methods of JavaScript creation with examples. 10

3. What is the usage of Regular Expressions ? Explain with examples. 10

UNIT–II

4. Explain Window objects and methods with examples. 10

5. What is Event handling ? Explain JavaScript event handlers with examples. 10

UNIT–III

6. How Cookies helpful in Browser Object Model ? 10

7. How forms are validated ? Explain with examples. 10

UNIT–IV

8. Explain jQuery events with examples. 10

9. What are the jQuery functions are used to provide effects ? 10

Roll No. ..... Total Pages : 3

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NBCA/M-25

INTRODUCTION TO WEB TECHNOLOGIES

Paper : B23-CAP-202

(CC-B2)

(BCA)

Time : Three Hours] [Maximum Marks : 50

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

Compulsory Question

1. (a) Describe the process of linking external CSS and JavaScript files to an HTML document.

(b) Explain the purpose of the HTML <meta> tag.

(c) What do you understand by the universal selector in CSS?

(d) Write a note on client side validation using JavaScript.

UNIT–I

2. (a) Discuss the importance of keywords and metadata in search engine indexing and ranking algorithms.

(b) What is URL? Describe the purpose of each component of a URL.

3. (a) What is a web browser, and how does it function? Name some popular web browsers and describe their key features.

(b) Write a note on evolution of WWW.

UNIT–II

4. (a) How can you merge cells in an HTML table? Provide examples.

(b) Describe the purpose of form attributes such as action and method in HTML forms.

5. (a) Explain the purpose of an ordered list in HTML. How does it differ from an unordered list? Illustrate.

(b) Describe the process of creating hyperlinks in HTML. How do you create internal and external links?

UNIT–III

6. (a) Describe the difference between content-box and border-box values for the box-sizing property. When would you use each?

(b) Explain the difference between inline, internal, and external CSS.

7. (a) What is the difference between class and id selectors in CSS? Illustrate.

(b) What are pseudo-classes and pseudo-elements in CSS? Discuss.

UNIT–IV

8. (a) Describe the role of the Document Object Model (DOM) in JavaScript. How do you manipulate HTML elements using JavaScript?

(b) What is the difference between for in and for of loop in JavaScript? Discuss.

9. (a) Explain the difference between == and === operators in JavaScript.

(b) Describe the purpose of functions in JavaScript. How do you define and call functions in JavaScript?

Roll No. ..... Total Pages : 3

2143

NBCA/M-25

CONCEPTS OF OPERATING SYSTEMS

Paper : B23-CAP/CTS/CAL/CDS-203

(CC-C2)

Time : Three Hours] [Maximum Marks : 50

Note : Question No. 1 is compulsory. In addition attempt *four* more questions, selecting at least *one* question from each unit. All questions carry equal marks.

Compulsory Question

1. Attempt all the followings :

(a) Context Switching.

(b) Deadlock prevention.

(c) Swapping.

(d) First fit and Best fit.

(e) Acyclic- Graph Directory Structure. (5×2=10)

UNIT–I

2. What is an Operating System? Explain the concept of timesharing, distributed, network operating system in detail. (10)

3. (a) Write short note on system call and system program. (5)

(b) Define multiprogramming. How multiprogramming ensures effective utilization of main memory and CPU? (5)

UNIT–II

4. Consider the following set of processed that arrive at time 0, with the length of CPU Burst time (or run time) given in milliseconds.

Process	Burst Time	Priority
P1	8	3
P2	4	1
P3	5	4
P4	9	2

Calculate Average Waiting Time and Average Turnaround time for followings :

(a) Priority Scheduling.

(b) Round Robin Scheduling.

Consider time quantum of 5 milliseconds. (10)

5. Define deadlock. Explain Banker's algorithm using example. (10)

UNIT–III

6. What is Virtual Memory? Explain various page replacement policies in detail. (10)

7. Explain Followings :

(a) Critical Section problem. (5)

(b) Segmentation. (5)

UNIT–IV

8. What is disk scheduling? Explain any *four* disk scheduling algorithm with suitable example. (10)

9. Explain following in detail :

(a) Disk structure. (5)

(b) File protection mechanisms. (5)

(ii) I ..... to Delhi tomorrow. (go)

(iii) Shakespeare ..... from 1564 to 1616. (live)

(iv) The Rajdhani express ..... at this station. (not stop)

(v) The sun ..... in the east. (rise)

(vi) Truth ..... no examination (fear)

(vii) The college ..... by the time we reach there. (close).

Roll No. ..... Total Pages : 4

BAEC/M-25 **12723**

ENGLISH LANGUAGE AND COMMUNICATION SKILLS : LEVEL 2

Paper–B23–AEC–211

Time Allowed : 3 Hours] [Maximum Marks : 35

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

Compulsory Question

1. Attempt answers all the following :

(i) What is Phonetics ?

(ii) How many Consonants sounds are there in English Language ?

(iii) What do you mean by Pitch ?

(iv) Write two tips to boost confidence in Speaking.

(v) Write a short note on Simple Past Tense.

(vi) Write a sentence using Simple Present Tense.

(vii) Which punctuation marks are used in the following sentence :

He said, "Bravo! You did well."

UNIT–I

2. Transcribe any **14** words from the list given below :

Child, Mill, Gate, Wet, Book, Shoe, See, Life, Hurt, Please, Tight, Doubt, Circle, Thin, There, Women, Age.

For Blind Students only

Develop a story from the given hints :

A Wolf looked at a flock of sheep daily ..... dare not attack for fear of dogs ..... wolf plans ..... puts on sheep's skins ..... gets mixed up with the flock ..... sheep bleat ..... wolf tries to bleat ..... only howls ..... sinister wolf was detected ..... killed by dogs ..... greed leads us to destruction.

3. Describe Consonants Sounds in detail.

For Blind Students only

Develop a story from the given hints :

A farmer went to market ..... saw a goose ..... took home ..... lays golden eggs ..... farmer's wife becomes greedy ..... asks her husband to cut goose open ..... found no golden egg ..... farmer becomes sad ..... repented.

UNIT–II

4. Write dialogues between two friends regarding participation in a drama in Cultural event of their college.

5. What are disadvantages of Group discussion ?

UNIT–III

6. Punctuate the following sentences :

(i) oh that's really great.

(ii) sure why not.

(iii) im an indian.

(iv) where do you live.

(v) his mother in law is a doctor.

(vi) what a beautiful day.

(vii) the children s playground is nearby

7. Describe the uses of Capital Letters with examples.

UNIT–IV

8. Describe Past tense and its uses in detail.

9. Fill in the blanks with correct form of verbs given in brackets.

(i) Four plus four ..... eight. (make)

Roll No. .....

Total Pages : 3

NBCA/M-25

2328

COMPUTER GRAPHICS

Paper–CC–C4 : B23–CAP–403

Time Allowed : 3 Hours]

[Maximum Marks : 50

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

Compulsory Question

1. Answer any Seven of the following questions in brief :

   (a) What is the purpose of Frame Buffer in a graphics system?

   (b) Which input device do you commonly use with Graphical User Interface?

   (c) Describe the equation for drawing a Circle using the polynomial method.

   (d) Write the equation for drawing Bezier curves.

   (e) Define homogeneous coordinates and explain their significance in Computer graphics.

(f) Perform a composite transformation on a point (5, 5) with translation (2, 3) and a scaling factor of 2.

(g) Write the matrix for scaling in 3D transformations.

(h) Write any one equation to illustrate shading.

UNIT–I

2. (a) Describe any four applications of Computer graphics in different domains.

(b) Describe the basic principles of a Raster-scan system and how it displays images on a screen?

3. (a) Explain the working principle of LCD panels in Computer graphics.

(b) How do tablets contribute to the field of Computer graphics?

UNIT–II

4. Given the coordinates of two points $(x_1, y_1) = (4, 5)$ and $(x_2, y_2) = (10, 7)$, calculate the pixels forming the line using the DDA algorithm.

5. Use Bresenham's algorithm to plot the pixels to draw a circle with a radius of 5 and center at (3, 3).

UNIT–III

6. Describe the process of Rotating objects in Computer graphics. How is rotation about an arbitrary point different from rotation about the origin?

7. Describe the Cohen-Sutherland Line Clipping Algorithm and its steps for clipping a line segment against a Rectangular window.

UNIT–IV

8. Explain the concept of projections in Computer graphics. Differentiate between Orthographic parallel and Perspective projections.

9. Describe the Implementation of the depth buffer algorithm for hidden surface removal. What are its Computational requirements?

Roll No. ..... Total Pages : 3

NBCA/M-25 **2326**

DATA STRUCTURES AND APPLICATIONS

Paper–CC-A4:B23-CTS-401

Time Allowed : 3 Hours] [Maximum Marks : 50

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

Compulsory Question

1. Write short notes on the following : 5×2=10

   (a) How are Data structure traversed ?

   (b) Explain ⊙ notation for algorithm complexity.

   (c) Give prefix form for A/B^C + D.

   (d) Given an array of float values in row major representation A[1..M][1..N], If base address of this array 800 then find the address of A[i][j].

   (e) Compute the total number of nodes in a complete binary tree of height 4.

UNIT–I

2. Explain with example on the following :

   (a) Static and Dynamic Data structures. 5

(b) Non Primitive Data structures. 5

3. (a) How memory is allocated to a one dimensional array ? 5

(b) Write an algorithm to add two dimensional arrays a[1..M,1..N] and b[1..M,1..N]. 5

UNIT–II

4. (a) What are arrays of Characters ? How array of strings are initialized ? 5

(b) Explain syntax and purpose of following string handling functions:

(i) strcmp. (ii) strcat 5

5. (a) How a double linked list is organized and how it is different from an array ? 5

(b) Write an algorithm to traverse a double linked list. 5

UNIT–III

6. Differentiate between the following :

(a) Recursive and Iterative operations. 5

(b) Prefix and Postfix polish notation. 5

7. How a Dequeue is organized and develop an algorithm for insertion and deletion operations than a dequeue ? 10

UNIT–IV

8. (a) Explain linked organization of Binary tree in memory. 5

(b) Write an algorithm to traverse a binary tree in postorder. 5

9. Explain the following :

(a) Merge Sort. 5

(b) Binary Search. 5

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Total Pages : 3

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NBCA/M-25

MATHEMATICAL FOUNDATIONS FOR COMPUTER SCIENCE–II

Paper : B23-CAP-204

(CC-M2) (BCA)

Time : Three Hours]

[Maximum Marks : 20

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

Compulsory Question

1. (a) What is meant by frequency distribution and cumulative frequency distribution?

(b) What do you mean by dispersion?

(c) What is a scatter diagram?

(d) What is a regression coefficient? (4×1=4)

UNIT–I

2. Solve the integral $\int xe^x \, dx$. (4)

3. Explain Pie diagrams, Histograms, Frequency polygons, and Ogives. (4)

UNIT–II

4. The Median and Mode of the following wage distribution are known to be Rs. 33·50 and Rs. 34 respectively. Find the values f_3, f_4 and f_5.

Wages (in Rs.):	0-10	10-20	20-30	30-40	40-50	50-60	60-70	Total
Frequency :	4	16	f_3	f_4	f_5	6	4	230

(4)

5. For a group of 200 candidates, the mean and standard deviation of scores were found to be 40 and 15 respectively. Later on, it was discovered that the scores 43 and 35 were misread as 34 and 53 respectively. Find the corrected mean and standard deviation corresponding to the corrected figures. (4)

UNIT–III

6. What is rank correlation? How can handle repeated ranks in this type of correlation? Obtain the rank correlation coefficient for the following data :

X	68	64	75	50	64	80	75	40	55	64
Y	62	58	68	45	81	60	68	48	50	70

(4)

7. Discuss the various methods for finding the correlation using suitable examples. (4)

UNIT–IV

8. Find a linear regression equation for the following set of data :

X :	2	4	6	8
Y :	3	7	5	10

(4)

9. Fit a straight line of the form $Y = AX + B$ to the following data :

X :	0	5	10	15	20	25	30
Y :	10	14	19	25	31	36	39

(4)