

BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)

B.C.A. Sem-IV : WINTER : 2024

SUBJECT: OPTIMIZATION TECHNIQUES

Day : Tuesday
Date : 03/12/2024

W-26297-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.

- 1) Attempt ANY FIVE questions from **SECTION – I**.
- 2) Attempt ANY TWO questions from **SECTION – II**.
- 3) Figures to the **RIGHT** indicate **FULL** marks.
- 4) Answers to both the sections should be written in **SAME** answer book.
- 5) Draw neat and labeled diagram **WHEREVER** necessary.

SECTION – I

- Q.1** Draw network diagram and find the minimum time required to complete the project from the following data. (12)

Activity	1-2	1-3	2-4	2-5	3-4	3-6	4-6	5-6	5-7	6-7
Duration in days	05	09	12	11	17	14	12	10	15	16

- Q.2** Solve the following assignment problem which shows the time (in minutes) taken by each operator to carry out each job. (12)

Operators → Jobs↓	A	B	C	D
P	11	12	17	12
Q	11	13	18	15
R	12	14	13	14
S	13	13	14	13

- Q.3** Explain the characteristics and scope of optimization techniques. (12)

- Q.4** Find IBFS by using
a.NWCM b.LCM

From → To ↓	P	Q	R	S	Supply
A	45	49	45	40	150
B	49	41	49	42	200
C	50	52	51	55	175
D	54	56	63	70	275
Availability	200	200	200	200	

- Q 5** Suggest best strategy(action) from the following tabular information by using (12)
a. Expected Monetary Value method
b. Expected Opportunity Loss criteria

Action States of Nature	A1	A2	A3	Probability
N1	108	111	105	0.27
N2	102	122	121	0.34
N3	121	120	110	0.39

P.T.O.

- Q.6 Solve the following LPP graphically (12)
- Minimise $Z = 25x + 40y$
 subject to
 $5x + 6y \geq 390$
 $10x + y \geq 340$
 $x \leq 50$
 $x, y \geq 0$

- Q.7 Write short notes on ANY TWO of the following : (12)
- Origin of optimization techniques
 - Expected Value Of Perfect Information
 - Decision tree
 - Hungarian Method

SECTION - II

- Q.8 Find IBFS of the following transportation problem by using least cost method (20)
 method. Also find whether the obtained solution is optimal or not by using MODI method.

From → To ↓	P	Q	R	S	Supply
A	110	112	123	105	1200
B	112	114	135	129	1300
C	105	115	125	130	1100
D	110	109	111	130	1400
Availability	650	1650	1150	1550	

- Q.9 XYZ company manufactures two types of products: product A and product B. (20)
 Each of these two products has to be processed on three machines M1, M2 and M3. One unit of product A requires 20, 35 and 40 minutes on machines M1, M2 and M3 respectively. Similarly one unit of product B requires 30, 40 and 10 minutes on machines M1, M2 and M3 respectively. Maximum hours that are available for using these three machines M1, M2 and M3 are 60, 70 and 50 respectively. If the profits on one unit of product A and one unit of product B are Rs.200 and Rs.500 respectively, find the number of units of product A and product B the company has to manufacture in order to earn maximum profit. Formulate this as LPP and solve graphically.

- Q.10 Find optimal assignment in order to achieve maximum sales from the following (20)
 information wherein Saleman E can not be assigned area P.

Salesmen	Sales in Rs.lacs				
	A	B	C	D	E
P	109	105	120	140	
Q	180	183	187	157	182
R	164	168	165	190	125
S	140	168	180	154	159
T	189	190	180	163	146

BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-IV : WINTER : 2024
SUBJECT: ADVANCED HTML WITH JAVA SCRIPT & CSS

Day : Saturday
Date : 30/11/2024

W-26296-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.

1. Attempt ANY FIVE questions from Section – I and ANY TWO questions from Section II
2. Figures to the RIGHT indicate FULL marks.
3. Answers to both the sections should be written in SAME answer book.

SECTION – I

- Q.1** Describe the key components and functionalities of CSS rule. (12)
- Q.2** Explain the concept of functions in JavaScript, providing examples of both built-in and user-defined functions. (12)
- Q.3** Explain the concept of event propagation in JavaScript, highlighting the differences between event bubbling and event capturing. (12)
- Q.4** Explain how JavaScript can be used to manipulate the Document Object Model (DOM) dynamically, providing examples of common DOM manipulation tasks. (12)
- Q.5** Describe concept of asynchronous JavaScript and its significance in modern web development, including the use of call back , promises and async / await. (12)
- Q.6** Discuss the security consideration associated with client-side JavaScript, including best practices for mitigating common vulnerability such as Cross-Site Scripting (XSS). (12)
- Q.7** Write Short Notes on ANY TWO of the following : (12)
- a) Control structure in JavaScript.
 - b) Flexbox and grid layout in CSS.
 - c) AJAX .

SECTION – II

- Q.8** Develop a JavaScript function that takes an array of numbers as input and return a sum of all element in the array. (20)
- Q.9** Create an HTML form with drop-down menu containing three options: "Red", "Green" and "Blue". Write JavaScript code that changes the background color of web page to the selected color when an option is chosen from the drop -down. (20)
- Q.10** Create an HTML form with a text area input field. Write JavaScript code that counts the number of characters entered into the text area in real-time and display the count below the input field. (20)

BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
B.C.A. Sem-IV : WINTER : 2024
SUBJECT: COMPUTER NETWORKS

Day : Tuesday
Date : 26/11/2024

W-26294-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.

- 1) Attempt **ANY FOUR** questions from Section – I and **ANY TWO** questions from Section – II.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

- Q.1** a) What do you mean by computer network? Give the applications of network in entertainment industry. (08)
b) Explain the terms: (07)
i) Bandwidth ii) Throughput
iii) Frequency
- Q.2** a) Discuss the concept of FDM and TDM in brief. (08)
b) What is unguided transmission media? Discuss the problems associated with unguided transmission media. (07)
- Q.3** Differentiate between: (15)
a) Intranet and Extranet
b) Synchronous transmission and Asynchronous transmission
c) Direct routing and Indirect routing
- Q.4** Explain in detail Link State Routing algorithm with its merits and demerits. (15)
- Q.5** a) What is encryption? Explain various types of it. (08)
b) What is need of IP v6 addressing? Give the structure and example of it. (07)
- Q.6** Write short note on **ANY THREE** of the following : (15)
a) Domain name
b) Message Authentication
c) Connection oriented services
d) Wireless LAN

SECTION – II

- Q.7** As a network engineer, you have been assigned task of designing network of 175 computers. Give the minimum hardware requirement to build this network. Which topology will you prefer? Why? (20)
- Q.8** a) Identify the class of IP addresses given below with justification. (10)
i) 125. 125. 125. 125
ii) 222. 254. 100. 7
iii) 128. 254. 111.10
b) Give the features of 3G and 4G networks. (10)
- Q.9** Explain in detail OSI reference model. Compare it with TCP/IP reference model. (20)