PURBANCHAL UNIVERSITY

2024

Master of Computer Application (M. C. A.)/Third Semester/*Final*

Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

MCA203: Digital Marketing and Marketing Management *(New Course)*

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×16=32**

1. Explain the concept of digital marketing. Discuss digital marketing as a tool process for companies in the context of its importance in modern business world.
2. Explain the concept of social media optimization. Discuss its components in brief.
3. Define the concept of marketing planning and control. Explain different planning tools in brief.

Group B

Answer SIX questions. **6×8=48**

4. Explain the term "Search Engine Optimization (SEO)"? Briefly describe the On page and Off page optimization.
5. How do you explain product life cycle strategies?
6. What is marketing? Explain the tasks/functions of marketing.
7. Define Marketing Information System and explain its components.
8. What is consumer product? Explain the consumer buying decision process.
9. What is pricing? Explain the new product pricing strategy.
10. Write short notes on Any TWO:
    (a) Channel structure for consumer products
    (b) Search engine marketing
    (c) Market analysis

PURBANCHAL UNIVERSITY
2024

Master of Computer Application (M. C. A.)/Third Semester/*Final*

Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24

MCA242: Supply Chain Analysis (Specialization-3) *(New Course)*

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×12=24**

1. Explain the concept and importance of supply chain. Discuss SMART goals of supply chain analytics with examples.
2. What do you understand by data manipulation? Briefly explain different aspects of data processing.
3. Define the concept of logistics management. Explain different mode of transport in logistic with examples.

Group B

Answer SIX questions. **6×6=36**

4. What do you mean by data driven supply chain? Explain the importance of data and its value in supply chain management.
5. Explain the process of creating and formatting a figure in Python for data visualization.
6. Explain different benefits of customer-center supply chain.
7. Explain the concept of supplier relationship management with examples.
8. What is warehouse management? Explain different principles of warehouse management.
9. Explain the procedures of demand forecasting.
10. Explain the process of geographic mapping with Basemap in Python.
11. What is cohort analysis? How does it help to analyze the customer? Explain.

PURBANCHAL UNIVERSITY
2024

Master of Computer Application (M. C. A.)/Third Semester/*Final*

Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

MCA244: Internet and Social Media Marketing (Specialization-4) *(New Course)*

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×16=32**

1. "Digital transformation is the major factor behind bringing fundamental changes in today's business world." Explain with suitable examples.
2. What are the relationships between marketing analytic tools and segmenting, targeting and positioning process in today's digital market? How can we best use the analytic tools for effective market segmentation, market target and market positioning? Discuss with appropriate examples.
3. Why is mobile commerce transaction growing? How is location-based service helping in the growth of m-commerce? Elaborate with suitable examples.

Group B

Answer SIX questions. **6×8=48**

4. What are the 5Ds of digital marketing? Elaborate with examples.
5. How blog is created? Explain.
6. Explain about 'Search Engine Marketing', 'Video Marketing' and 'Market Gamification'.
7. Discuss different types of digital acquisition techniques.
8. Discuss the differences between online PR and traditional PR.
9. What are the security issues in digital marketing? Explain.
10. Explain the role of Facebook in product promotion.
11. Write short notes on Any TWO:
    (a) Content planning and writing
    (b) Mobile marketing
    (c) Digital marketing trends in Nepal

PURBANCHAL UNIVERSITY
2024

Master of Computer Application (M. C. A.)/Third Semester/*Final*

Time: 03:00 hrs. Full Marks: 60 /Pass Marks: 24

MCA202: Data Mining and Data Warehousing *(New Course)*

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×12=24**

1. What is Association Rule Mining? Consider a dataset of transactions in a grocery store:

Transaction ID	Items Purchased
1	Diaper, Beer, Wipes
2	Wipes, Olive oil, Pacifier
3	Formula, Beer, Mittens, Eggs
4	Beer, Pacifier
5	Formula, Beer, Pacifier

Using this dataset, calculate:

(a) The support for the itemset {Diaper, Beer}

(b) Confidence for the association rule {Diaper}→{Beer}

2. Define classification and prediction in Data Mining. Provide brief explanations of Decision Trees and Bayesian Classification methods.

3. What is cluster analysis? Describe K-means clustering method with a suitable example.

Group B

Answer SIX questions. **6×6=36**

4. Differentiate between data warehousing and operational database. Design and explain a simple data warehouse architecture. 2+4

5. Explain various data mining techniques. Why is data cube considered useful in data mining? 4+2

6. How is partitioning method different form hierarchical method? Explain.

Cont. ...

7. Describe the process data cleaning in data preprocessing. Why is it important?

8. Discuss the classification accuracy. List down the applications of data mining. 4+2

9. Explain mining text database. Give examples of applications where this type is mining is used.

10. What is a multi-dimensional data model? Briefly explain slice and dice operations.

11. Write short notes on Any TWO:

(a) Data Mining Query language

(b) Data integration and transformation

(c) OLAP

PURBANCHAL UNIVERSITY

2024

Master of Computer Application (M.C.A.)/Third Semester/*Final*

Time: 03:00 hrs. Full Marks: 80 /Pass Marks: 32

MCA201/MCA211: Optimization Techniques *(New/Old Course)*

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Group A

Answer TWO questions. **2×16=32**

1. A company produces two types of TVs, one of which is Black & White, the other Color. The company has the resources to make at most 200 sets a week. Creating a Black & White set includes Rs 2700 and Rs 3600 to create a Color set. The business should spend no more than Rs 648000 a week producing TV sets. If it benefits Rs 525 per set of Black & White and Rs 675 per set of Color, how many Black & White sets and Color sets it should produce in order to get maximum profit? Formulate this using LPP and solve using any method.

2. Solve the following LP using Simplex method.

   Maximize $Z = 5X_1 + 3X_2$

   Subject to the constraints

   $x_1 + x_2 \le 2, \quad 5x_1 + 2x_2 \le 10, \quad 3x_1 + 8x_2 \le 12, \quad x_1, x_2 \ge 0$

3. Solve the following assignment problem shown in table using Hungarian method. The matrix entries are processing time of each job to each machine in hours.

J/M	I	II	III	IV	V
1	9	22	58	11	19
2	43	78	72	50	63
3	41	28	91	37	45
4	74	42	27	49	39
5	36	11	57	22	25

Contd. ...

Group B

Answer SIX questions. **6×8=48**

4. Use graphical method to solve the following LP problem.

Minimize $Z = 20x_1 + 10x_2$

Subject to constraints; $x_1 + 2x_2 \leq 40, \quad 3x_1 + x_2 \geq 30$

5. What is queuing theory? The counter of a bank branch performs the transactions with a mean time of 2 minutes. The customers arrive at a mean rate of 20 customers/hour. If we assume that arrivals follow a Poisson process and that the service time is exponential, determine:

(a) Percentage of the time the bank teller is idle,

(b) Mean waiting time of the customers,

(c) Percentage of customers that wait in a queue.

6. What is Duality in Linear Programming? Write the rules for converting any Primal into its Dual? Write the Dual of the following problem.

Minimize $Z = 2x_2 + 5x_3$

Subject to;

$x_1 + x_2 \geq 2, \quad 2x_1 + x_2 + 6x_3 \leq 6, \quad x_1 - x_2 + 3x_3 = 4$

$x_1, x_2, x_3 \geq 0$

7. Solve the following using Dual Simplex method;

Minimize $Z = 3x_1 + x_2$

Subject to; $x_1 + x_2 \geq 1, \quad 2x_1 + 3x_2 \geq 2, \quad x_1 \geq 0, \quad x_2 \geq 0$

8. What do you understand by transportation problem? Determine the basic feasible solution of:

	D_1	D_2	D_3	D_4	Supply
O_1	5	4	2	6	14
O_2	7	8	3	5	16
O_3	4	3	6	2	5
Required	6	10	15	4	35

by North-West Corner method.

Contd. ...

9. Solve the following LPP using Gomory's Cutting Plane method.

Max $Z = 8x + 5y$

Subject to the constraints;

$x + y \leq 6, \quad 9x + 5y \leq 45$

$x, y \geq 0$ and are integers.

10. What do you mean by critical path analysis? The following details are available regarding a project:

Activity	Predecessor activity	Duration (Weeks)
A	-	3
B	A	5
C	A	7
D	B	10
E	C	5
F	D, E	4

Determine the critical path, the critical activities and the project completion time.

11. Explain the meaning of Linear Programming Problem stating its uses and limitations. Discuss the application of LPP in managerial decision-making.