SARDAR PATEL UNIVERSITY
Master of Computer Application
Semester – I (NC) External Examinations, April 2019
PS01FMCA21 – Fundamentals of Mathematics and Accounting
Friday, 5th April, 2019

Time: 10:00 a.m. to 01:00 p.m.   Marks: 70

Q1. Choose the most appropriate option for each question.   [8]

i. If logical operator NOT produces _____ of input.
  A) conjunction   B) disjunction
  C) negation   D) none of these

ii. A square matrix in which all the elements of principal diagonal are one and all other element as zero is called as _____ matrix.
  A) identity   B) unique
  C) null   D) equilateral

iii. In a Graph G, if two edges have same starting and ending vertex, then they are called as _____ edges.
  A) perpendicular   B) parallel
  C) adjacent   D) self loop

iv. If a graph is a tree, it cannot have _____.
  A) sub graph   B) leaf
  C) circuit   D) root

v. ____ is a personal account.
  (a) Drawing a/c   (b) Purchase a/c   (c) Salary a/c   (d) None of given

vi. ____ is a real account.
  (a) Capital a/c   (b) Sales a/c   (c) Salary a/c   (d) None of given

vii. ____ is a Nominal account.
  (a) Drawing a/c   (b) Sales a/c   (c) Rent paid a/c   (d) None of given

viii. While preparing Trial balance from given balances, the accounts of assets are considered as _____ balance.
  (a) Credit   (b) Debit   (c) a or b   (d) None of given

Q2. Answer the following questions (Any Seven):   [14]

a. Give truth table for AND operation with two inputs and one output.

b. Find the determinant of the matrix $A = \begin{vmatrix} 2 & -3 \\ 3 & 3 \end{vmatrix}$.

c. Define simple graph. Give one example of simple graph.

d. Explain edge-disjoint sub graph with example.

e. Define binary tree and give one example of binary tree.

f. Define accounting.

g. Write the limitations of accounting.

h. Differentiate clearly Balance sheet and Trial Balance.

i. Define the term: Drawings and Capital.

Q3. Answer the following questions:

a. State the principle of mathematical induction and check $1 + 3 + 5 + \cdots + (2n - 1) = n^2$ is true or not.   [6]

b. Define truth table. Also verify   [6]
  (i) $\overline{PQ} = \bar{P} + \bar{Q}$ and (ii) $\overline{P + Q} = \bar{P} X \bar{Q}$ are valid or not using truth table.

OR

(PTO)

**b.** Solve the following system of equations using Gaussian Elimination method. [6]

$$2x + 4y + 6z = 4$$
$$x + 5y + 9z = 2$$
$$2x + y + 3z = 7$$

Q4. **Answer the following questions:**

a. List and explain in detail any two classical problems of graph theory. [6]

b. Prove that a connected graph G is Euler graph if and only if all vertices of G are of even degree. [6]

OR

b. Define spanning tree. Explain kruskals method for finding minimum cost spanning tree for following [6] graph G:
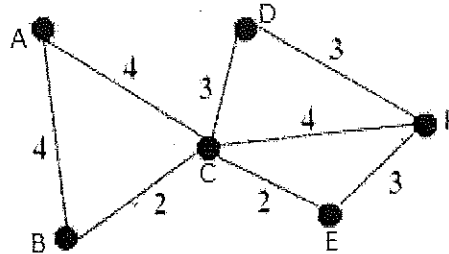
Q5. **Answer the following questions:**

a. **Enter** the following transactions of Mr. Purohit for December 2018, in a **Journal** book. [6]

2018 December

1 Started business with cash of Rs. 10,00,000 and furniture worth Rs 50,000.
5 Purchased goods from Mr. Mehta worth Rs. 50,000.
16 Sold goods to Mr. Patil costing Rs. 60,000 .
28 Mr. Purohit withdraw Rs 50,000 for personal use.
31 Paid salary to a clerk, Mr. Ravi , Rs 12000.

b. Explain briefly the types of error(s) that cannot be disclosed by trial balance. [6]

OR

b. Explain the types of accounts in detail with example(s). [6]

Q6. **Answer the following questions:**

a. Mr. Shyam carried out business and as on 31st March, 2018 the following Trial Balance was prepared. [6]

Dr. Balances		Cr. Balances	
Rs.		**Rs.**	
Machinery	1,00,000	Bank Overdraft	13,000
Purchases (Cash)	5,600	Sundry Creditors	7,400
Furniture	54,000	Capital	1, 35,000
Wages	3,200	Sales(credit)	20,000
Purchases(credit)	16,000	Sales(Cash)	13,000
General Expenses	190	Purchase return	1000
Carriage outward	210	Loan	25,000
Discounts	150	Interest	2,400
Taxes	50	Discount	5,000
Traveling Expenses	1000		----------
Drawings	5,000	Total	2,21,800
Sales return	1,000		
Stock (opening)	10,000		
Goodwill	20,000		
Cash in hand	1,400		
Discount	2,000		
Bad debts	2,000		

Total	2,21,800		

Prepare Trading Account, Profit & Loss Account and a Balance Sheet taking into following considerations:

(1) Depreciate Machinery by 10 % and allow 7% interest on capital.
(2) The closing stock was valued Rs. 20,000.

b. List out the final accounts and write their uses (purposes). [6]

OR

b. Explain the limitations of Journal book or advantages of Ledger. [6]

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