



- 4) In the ..... form, all non-key attributes are fully functional dependent on primary key.
  - a) Second normal
  - b) Third normal
  - c) First normal
  - d) BCNF
- 5) The referential integrity constraint of a relational database can be specified with help of?
  - a) Primary Key
  - b) Secondary Key
  - c) Foreign Key
  - d) None of these
- 6) Programmers cannot control the ..... cursors and the information in it.
  - a) implicit
  - b) explicit
  - c) both a) and b)
  - d) None of these
- 7) Triggers can be defined on the.....
  - a) table
  - b) view
  - c) schema
  - d) All of these
- 8) Consider the table :  
Student : roll no, name, class, caste  
To show number of student from each class, select correct query
  - a) Select count(\*) from student group by class;
  - b) Select count(\*) from student group by class
  - c) Select count(\*) from student where class = "MCA I";
  - d) All of these

- Q. 2 a) Differentiate between DBMS and RDBMS.
- b) Describe ACID properties of transaction.

- Q. 3 a) Explain different types of commands in SQL.
- b) Discuss different levels of constraints.

- Q. 4 a) Explain different control structures used in PL/SQL.
- b) What is PL/SQL? Define various PL/SQL language elements.

- Q. 5 a) What is meant by Cursor? Explain different attributes of cursor. [7]  
b) Discuss In, Between, Like operator with an example. [7]
- Q. 6 Explain in detail different data models. [14]
- Q. 7 Write short notes on (Any four) [20]
- a) CODD rule
  - b) Join operation
  - c) Steps to create a PL/SQL program
  - d) Procedure
  - e) Types of Normalization
  - f) Built in functions in SQL
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M.C.A. (COMM.) (Part-I) (Semester-I) (CBCS)

Examination, May 2024.

Statistical and Mathematical Foundations

Sub. Code : 81141

Day and Date: Monday, 13-05-2024

Total Marks: 70

Time: 10.30 a.m. to 01.30 p.m.

- Instructions:
- 1) Question Nos. 1 and 7 are compulsory.
  - 2) Attempt ANY THREE questions from Q.2 to Q.6.
  - 3) Figures to the right indicate full marks.
  - 4) Use of non-programmable calculator is allowed.

Q.1 Choose the correct alternative for each of the following. (8)

- 1) The arithmetic mean of squares of deviations taken from arithmetic mean is called .....  
(A) S.D. (B) Mean  
(C) Variance (D) IQR
- 2) If all the points of a scatter diagram lie on a straight line falling from left upper corner to the right bottom corner, then the correlation is called .....  
(A) zero correlation  
(B) high degree of positive correlation  
(C) perfect positive correlation  
(D) perfect negative correlation
- 3) In a Poisson distribution, if  $n$  is the number of trials and  $p$  is the probability of success, then the mean value is given by .....  
(A)  $m = np$  (B)  $m = np(1 - p)$   
(C)  $m = n$  (D)  $m = p$

- 4) Arithmetic mean of the two regression coefficients is .....
- (A) equal to correlation coefficient
  - (B) greater than correlation coefficient
  - (C) less than correlation coefficient
  - (D) greater than or equal to correlation coefficient

- 5) In binary logistic regression, .....
- (A) the dependent variable is continuous
  - (B) the dependent variable consists of two categories
  - (C) the dependent variable is divided into two equal subcategories
  - (D) there is no dependent variable

- 6) Consider the following two statements:

- (i) LDA is supervised whereas PCA is unsupervised.
- (ii) PCA maximizes the variance of the data, whereas LDA maximizes the separation between different classes.

Then, .....

- (A) statement (i) is true and statement (ii) is false
- (B) statement (i) is false and statement (ii) is true
- (C) both statements (i) and (ii) are true
- (D) both statements (i) and (ii) are false

- 7) A statement that is false for all possible values of its propositional variables, is called .....

- (A) tautology
- (B) contradiction
- (C) contingency
- (D) None of these

- 8) A graph with all vertices having equal degree is known as a .....
- (A) null graph
  - (B) regular graph
  - (C) complete graph
  - (D) planer graph

- Q.2 a) Define Q.D. Construct a box plot to represent the data given below: (7)
- 40, 23, 45, 34, 32, 48, 50 (7)

- b) Define: (i) Disjunction  
(ii) Conditional statement. Prepare truth table for  $(p \vee q) \rightarrow r$ .

- Q.3 a) Define correlation. Calculate the Karl Pearson's coefficient between price and demand. (7)

Price	2	3	4	7	6
Demand	2	1	3	8	10

- b) Define adjacency matrix of a graph  $G$ . Draw the undirected graph represented by adjacency matrix (7)

$a \quad b \quad c$

$$A(G) = \begin{matrix} a \\ b \\ c \end{matrix} \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 2 \\ 1 & 2 & 0 \end{bmatrix}$$

- Q.4 a) Define Standard Deviation and Coefficient of Variation. Calculate SD and coefficient of variation of marks of 10 students. (7)

Marks of students are : 25, 30, 15, 14, 23, 20, 26, 27, 19, 16.

- b) Find the regression line  $Y$  on  $X$ , for the following data and estimate  $Y$  when  $X = 9$ .

$X$	18	26	28	31	25	19	35
$Y$	11	16	19	17	14	11	24

- Q.5 a) Weight of students are distributed normally with mean of 40 kg. and S.D. of 4 kgs. Find the probability that weight of selected student is : (7)

i) Less than 36 kgs.

ii) More than 45 kgs.

(Area under normal curve from  $Z = -1$  to  $Z = 1$  is 0.6826 and  $Z = 0$  to  $Z = 1.25$  is 0.3944).

- b) State equations of regression lines. For two variables  $X$  and  $Y$  the lines of regression are  $3X + 2Y - 26 = 0$  and  $6X + Y - 31 = 0$ .

Find i) mean of  $X$  and  $Y$ .

ii) Correlation coefficient between  $X$  and  $Y$ . (7)

Q.6 a) Calculate rank correlation coefficient from the data given below: (7)

Demand	52	63	45	36	72	65	45	25
Supply	62	53	52	25	79	43	60	33

b) Define converse and inverse of conditional statement  $p \rightarrow q$ . Write the converse and inverse of the following statement:

"If Howard can swim across the lake, then Howard can swim to the island." (7)

Q.7 Write short notes on ANY FOUR the following. (20)

- 1) Positive and negative correlation
  - 2) Rules of inference for propositional logic
  - 3) Types of graphs
  - 4) Poisson distribution
  - 5) Linear discriminant analysis
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Total No. of Pages : 3

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MCA (Part - I) (Semester - I)

Examination, April - 2024

KNOWLEDGE MANAGEMENT

Sub. Code : 81170

Day and Date : Wednesday, 15-05-2024

Total Marks : 70

Time : 10.30 a.m. to 01.30 p.m.

- Instructions :
- 1) Q. 1 and Q. 7 are compulsory.
  - 2) Attempt any three questions from Q.2 to Q. 6.
  - 3) Figures to the right indicate full marks.

Q.1) Choose the correct alternative and rewrite the sentence.

8

- i) Which one of the following is a property of knowledge capturing?
  - a) Determining feasibility
  - b) Choosing appropriate expert
  - c) Taping the expert's knowledge
  - d) All of these
- ii) The term ..... refers to a set of sequenced planned actions or events intended to help an organization increase its effectiveness.
  - a) intervention
  - b) performance management
  - c) knowledge management
  - d) institutionalization
- iii) ..... is conversing from tacit to explicit knowledge.
  - a) Socialization
  - b) Externalization
  - c) Combination
  - d) Internalization
- iv) ..... is a computerized system that systematically captures, organizes and categorizes an organizational knowledge.
  - a) Knowledge base
  - b) Data base
  - c) Interface engine
  - d) Knowledge repository



v) The ..... represents logical assertions and conditions about the world, usually represented via IF-THEN rules.

- a) knowledge base
- b) data base
- c) inference engine
- d) none of these

vi) ..... knowledge that can be readily articulated, codified, accessed and verbalized and easily transmitted to others.

- a) Explicit
- b) Implicit
- c) External
- d) Logical

vii) The major goal of KM is to .....

- a) convert all tacit knowledge into explicit knowledge.
- b) promote knowledge reuse and organizational innovation.
- c) ensure that all knowledge resides within the organization and not within the knowledge workers of that organization.
- d) formalize content management procedures in order to fully standardize within the organization.

viii) ..... is a processed data.

- a) Information
- b) Knowledge
- c) Intelligence
- d) None of these

Q.2) a) Discuss the scope and significance of knowledge management.

b) Explain knowledge life cycle.

Q.3) a) Explain various components of knowledge management strategy.

b) Explain different knowledge acquisition tools.

Q.4) Health department of Government of Maharashtra wants to implement KM system. As an IT expert suggest knowledge management system model for health department.

Q.5) a) Draw general model for knowledge management and present an outline for the same. 7

b) Explain different knowledge mapping techniques. 7

Q.6) Explain the role and significance of KM for university and develop KM map for university. 14

Q.7) Write short notes on : (Any four) 20

- a) Types of knowledge
  - b) Knowledge economy
  - c) Knowledge conversion
  - d) Knowledge evolution
  - e) Decision support system
  - f) Knowledge markets
-