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III Semester M.C.A. Degree Examination, April/May - 2026
COMPUTER SCIENCE
Research Methodology
(CBCS Scheme 2020-2021)
Paper : 3MCA3

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates :

1) Answer any Five questions from - Section A.
2) Answer any four questions from - Section B.

SECTION - A

Answer any Five of the following questions. Each question carries six marks. **(5×6=30)**

1. What are the different types of Research? Explain applied and fundamental research with examples.

2. What is APA Ethics Code? Discuss the ethical principles relevant to research.

3. Define Standard Deviation and Variance. What is their significance in statistical analysis?

4. What is multivariate analysis? Explain briefly any two multivariate statistical techniques.

5. What is a cumulative frequency table? How is it constructed?

6. What is Fuzzy Logic? Discuss fuzzy system optimization with an example.

7. Discuss the process of referencing in academic writing. Compare APA and IEEE citation styles.

8. Describe briefly the different types of research reports.

SECTION - B

Answer any Four of the following questions. Each question carries Ten marks. **(4×10=40)**

9. Explain the various steps involved in the research process. How does each step contribute to the quality of the research?

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10. Discuss the statistical modelling and analysis techniques used in research with examples.

11. What are the different methods used to show the relationship between two variables? Explain with examples.

12. a) Explain Regression Analysis with an example. (5)

    b) What is data cleaning? Explain its role in preparing data for analysis. (5)

13. Explain neural networks and their role in optimization.

14. What are the key components of a research report? Explain the steps involved in writing a good report.

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III Semester M.C.A. Degree Examination, April/May - 2026

COMPUTER SCIENCE

Cryptography and Network Security (Elective)

(CBCS Scheme 2020-2021 Onwards)

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates :

1. Answer **any Five** questions from **Section - A.**
2. Answer **any Four** questions from **Section - B.**

SECTION - A

Answer any Five of the following. Each question carries 6 marks. **(5×6=30)**

1. Define Security Attacks and classify them with examples.
2. Explain the OSI Security Architecture and its components.
3. Describe the Symmetric Cipher Model with neat diagram.
4. Explain the working principle of the Data Encryption Standard (DES).
5. What is differential cryptanalysis? What are the applications of the same?
6. Explain Fermat's Theorem with an example.
7. Define Digital Signatures and list their properties.
8. Explain the role of firewalls in network security.

SECTION - B

Answer any Four of the following. Each question carries 10 marks. **(4×10=40)**

9. Explain the model for Network Security. Discuss various security services and mechanisms in detail.
10. Demonstrate the working of classical encryption techniques using substitution and transposition methods.
11. Explain AES structure and its design principles. Compare it with DES.

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12. Illustrate the RSA algorithm with a suitable numerical example.

13. Explain Digital Signature Standard (DSS) and X.509 authentication service in detail.

14. Discuss SSL/TLS protocols and explain how they provide secure communication over networks.

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III Semester M.C.A. Degree Examination, April/May - 2026
COMPUTER SCIENCE
Quantitative, Teaching and Research Aptitude
(CBCS Scheme 2020-2021)
Paper : 3MCA2

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates :

1. **Part-A:** Answer **any Five** questions. Each question carries **6** marks.
2. **Part-B :** Answer **any Four** questions. Each question carries **10** marks.

PART - A

Answer any Five questions. Each question carries 6 marks. **(5×6=30)**

1. a) Which of the following numbers are divisible by 11 (i) 84546 (ii) 62116

   b) Find the greatest 5-digit number divisible by 51

2. Four traffic signals change at intervals of 75, 90, 120, and 150 seconds respectively. If they all turn green together at 6:00 AM, then at what time will they all turn green together again?

3. The average expenditure of a person for the first 4 months is Rs.1500 and for the next 8 months is Rs.1800. If the person saves Rs.3600 in that year, what is the monthly average income?

4. Explain the differences between formal, distance and value education

5. A father is 24 years older than his son. After 6 years, the father's age will be twice the son's age. Find the present ages of the father and the son.

6. What is communication? Explain the barriers to communication.

7. If log 2 = 0.3010 and log 5 = 0.6990 find the values of (a) log 8 (b) log 12.5

8. The simple interest on a sum of Rs.3200 at the end of 5 years is Rs 1600. What would be the simple interest on a sum of Rs.4800 at the same rate and for the same period?

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PART - B

Answer any Four questions. Each question carries 10 marks. (4×10=40)

9. What do you mean by research? Explain the various steps in research.

10. a) What was the day of the year on 28 March 1776? (5)

    b) If 40 men working for 12 hours a day can complete a piece of work in 8 days, then how many men working 4 hours a day can complete the same work in 16 days? (5)

11. a) What are the characteristics and basic requirements of teaching? (5)

    b) Explain the governance and administration in the higher education system. (5)

12. Mr. Jacob gave 40 % of the money he had to his wife. He also gave 20 % of the remaining amount to each of his three sons. Half of the amount now left was spent on miscellaneous items and the remaining amount of Rs 12000 was deposited in the bank. How much money did Mr. Jacob have initially? Also find out how much money was given to his wife and his three sons.

13. a) Pipes A and B can fill a tank in 20 hours and 30 hours respectively and pipe C can empty the full tank in 40 hours. If all the pipes are opened together, how much time will be needed to fill the tank? (5)

    b) Two trains 220 metres and 290 metres in length are running towards each other on parallel lines, one at the rate of 50 kmph and the other at the rate of 58 kmph. How much time will they take to cross each other? (5)

14. a) A bag contains 5 red and 3 white balls. Two balls are taken from the bag at random without replacement. Find the probability that

    i) Both the balls are red ii) One red and one white ball are taken (5)

    b) Find the ratio in which rice at Rs 52.50 per kg should be mixed with rice at Rs 38.75 per kg to produce a mixture worth Rs 45.25 per kg? (5)

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III Semester M.B.A. (Day/Evening) Degree Examination, April/May - 2026

MANAGEMENT

Management Perspective (Open Elective)

(CBCS Scheme 2019)

Time : 3 Hours **Maximum Marks : 70**

SECTION - A

Answer ALL the questions from the following each question carries 2 marks. **(10×2=20)**

1. a) Define Management by Objectives.
   b) What is span of control?
   c) Define line organization structure.
   d) What is authority and responsibility?
   e) What is intrinsic motivation?
   f) What is a process chart?
   g) Define upward communication.
   h) Mention any two skills required for an effective presentation.
   i) State the elements of an Email.
   j) What is Budgeting?

SECTION - B

Answer any FOUR questions. Each question carries 5 marks. **(4×5=20)**

2. Explain the steps involved in the planning process.
3. Differentiate between centralization and decentralization in management with examples.
4. Explain the importance of staffing in an organization.
5. Discuss the principles of effective communication.

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6. What is delegation? Explain its advantages and limitations.

7. Explain the different styles of leadership in an organization.

SECTION - C

Answer any THREE questions. Each question carries 10 marks. **(3×10=30)**

8. Explain the functions of management in detail with examples.

9. Describe various types of organizational structures and their suitability.

10. Write a short note on:

    a) Pareto Analysis.

    b) Quality Circles.

11. Discuss the stages of team development and challenges in each stage.

12. Explain the process of business communication and methods to overcome communication barriers.

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III Semester M.C.A. (Two Years) Degree Examination, April/May - 2026
COMPUTER SCIENCE
Big Data and Analytics (Elective)
(CBCS Scheme 2020-21 Onwards)
Paper : 3MCAE2

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates :

1) Answer any **Five** questions from **Section - A.**
2) Answer any **Four** questions from **Section - B.**

SECTION - A

Answer any Five of the following questions. Each question carries 6 marks.(5×6=30)

1. What is Big Data? Explain the sources of Big Data.
2. Differentiate between Structured and Unstructured Data.
3. Explain traditional data integration with a neat diagram.
4. List and explain any two applications of Web Mining.
5. Discuss the techniques used to handle missing values during the data cleaning process.
6. Explain the architecture of HDFS with a neat diagram.
7. Explain Bayesian classification in detail.
8. What is Pig? Discuss its Data Processing operations.

SECTION - B

Answer any Four of the following questions. Each question carries 10 marks.
(4×10=40)

9. Discuss the significance of big data in various industrial applications.
10. Explain Hadoop Ecosystem in detail with a neat diagram.
11. a) Define the term data pre-processing. Explain its importance. **(7)**
    b) Construct Data discretization table for the below given set: **(3)**
    Age {1,5,9,4,7,11,14,17,13,18,19,31,33,36,42,44,46,70,74,78,77}
12. a) Differentiate between Supervised learning and Unsupervised learning. **(5)**
    b) Explain the features of HBase. **(5)**
13. Explain various types of clustering techniques.
14. Write a short note on the following: **(5+5)**
    a) MapReduce
    b) Hive

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III Semester M.C.A. Degree Examination, April/ May - 2026
COMPUTER SCIENCE
Web Programming (Elective)
(CBCS Scheme 2020-21 Onwards)

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates :

1) Answer any **Five** questions from Section - A.
2) Answer any **Four** questions from Section - B.

SECTION - A

Answer any Five of the following questions. Each question carries 6 marks. (5×6=30)

1. Explain the different features and newly added elements in HTML5.
2. Explain functions and Objects in JavaScript with an example.
3. What are JavaScript Cookies? Explain with an example?
4. Explain the different HTTP request and response methods with an example.
5. What is HTTP configuration? Explain in detail?
6. Explain the various properties and methods of XMLHttp Request object with an example.
7. Explain File handling and file upload in AJAX with an example.
8. Differentiate between XML and JSON.

SECTION - B

Answer any Four of the following questions. Each question carries 10 marks. (4×10=40)

9. Explain the different methods of DOM methods with a programming example.
10. What is Hoisting? Explain variable and function Hoisting with programming example.

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11. What are JavaScript Events? Explain the different Mouse and Forms Events with a programming example?

12. Explain the usage of strings and regular expressions in AJAX with an example.

13. Explain prototype inheritance and dynamic script loading in AJAX with an example.

14. Write a note on : (5+5)

    a) MIME

    b) XML parser
