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III Semester MCA Degree Examination, June/July - 2023

COMPUTER SCIENCE

Cryptography and Network Security (Elective)

(CBCS Scheme 2020-21) (Y2K20)

Time : 3 Hours

Maximum Marks : 70

Instructions to candidates:

- 1) Answer any **five** questions from section-A, each question carries 6 marks.
- 2) Answer any **four** questions from section-B, each question carries 10 marks.

SECTION-AAnswer any **Five** of the following questions. Each question carries 6 marks. (5×6=30)

1. Explain different types of security attacks on data.
2. Briefly explain the symmetric cipher model.
3. Explain DES encryption algorithm.
4. Explain cipher block chaining mode.
5. Write a note on Fermat's and Euler's theorem.
6. Write a note on Elliptic curve arithmetic.
7. Explain any two authentication protocols.
8. Compare SSL and TLS.

SECTION - BAnswer any **Four** of the following questions. Each carries 10 marks. (4×10=40)

9. Explain in detail different types of security services.
10. Explain different substitution techniques used for encryption.
11. Explain AES structure and encryption process with neat diagram.
12. Explain RSA algorithm with suitable example.
13. Explain different public keys distribution techniques.
14. Write short notes on
 - a) Digital signature.
 - b) Intrusion detection.

(5+5)



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III Semester M.C.A. Degree Examination, June/July - 2023

COMPUTER SCIENCE
Cloud Computing (Elective)
(CBCS Scheme(Y2K20))

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** questions. Each question carries 6 marks.

1. List out the advantages and dis-advantages of SaaS. (6)
2. Briefly explain Virtual Machines. (6)
3. Enlist data security risks in cloud computing. (6)
4. Discuss distributed computing. (6)
5. Briefly explain about Grid computing. (6)
6. Differentiate between private cloud and public cloud. (6)
7. Explain Business benefits in cloud computing. (6)
8. Explain briefly about Apache Hadoop library. (6)



SECTION - B

Answer any **FOUR** questions. Each question carries 10 marks.

9. Explain the various services and deployment models in cloud. (10)
10. Write short notes on: (5+5)
 - a) PaaS
 - b) Integration of Private and Public cloud.

[P.T.O.]





11. a) What is virtualization? Explain its uses.
b) Explain briefly access control and authentication in cloud computing. (4+6)
 12. Elaborate the working of Map Reduce with an example. (10)
 13. Explain briefly about the following: (5+5)
 - a) Google app engine
 - b) Aneka
 14. Write short notes on: (5+5)
 - a) Multi - tenancy Issue
 - b) Cloud - Infrastructure services.
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III Semester MCA Degree Examination, June/July- 2023

COMPUTER SCIENCE

Cyber-Space (Open Elective)

(CBCS Scheme 2020-21)(Y2k20)

Time : 3 Hours

Maximum Marks : 70

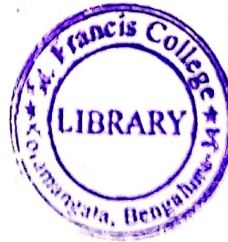
Instructions to candidates:

1. Answer all **Ten** questions from Part-A. Each question carries **Two** marks.
2. Answer any **Four** questions from Part-B. Each question carries **Five** marks.
3. Answer any **Three** full questions from Part-C. Each question carries **Ten** marks.

PART - AAnswer all **Ten** questions. Each question carries **Two** marks.

(10×2=20)

1. Define Web browser. Specify any two Web browsers.
2. What is LinkedIn? List any two features of LinkedIn.
3. Define e-commerce. List any two e-commerce sites.
4. What are the different types of payment modes in e-commerce?
5. What is E-governance? Specify any two reasons for need of E-governance.
6. Define Cyber security.
7. What is digital signature?
8. What is Cyber Offence?
9. Define http and https
10. What is Cyber terrorism?

**PART - B**Answer any **FOUR** questions. Each question carries **Five** marks.

(4×5=20)

11. What is social media? Discuss advantages and disadvantages of social media.
12. Explain difference between traditional commerce and E-commerce.
13. Discuss the stages of E-governance.

[P.T.O.]





14. Explain cyber appellate Tribunal in IT Act 2000.
15. What is HTML? Explain any four HTML tags with example.
16. Explain C2B and B2B E-commerce.

SECTION - C

Answer any **Three** full questions. Each question carries **Ten** marks.

(3×10=30)

17. a) Explain Twitter, Facebook and Youtube social media. (6)
b) Discuss privacy issues in social media. (4)
18. a) Explain different driving forces behind E-Commerce. (6)
b) Explain E-Mail protocols. (4)
19. Discuss E-governance challenges in International statutes and Indian statutes.
20. Explain salient features in IT act 2000.
21. Write short note on: (4+3+3)
 - a) IP Address
 - b) DSN
 - c) WWW



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III Semester M.C.A. Degree Examination, June/July - 2023

COMPUTER SCIENCE

Quantitative, Teaching and Research Aptitude

(CBCS Scheme Y2k20)

Paper : 3 MCA 2

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

All Parts are compulsory.

PART - A

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

1. a) Check whether the following numbers are prime or composite. (3+3)
(i) 241 (ii) 391 (iii) 571
b) Which of the following numbers are divisible by 3?
(i) 541326 (ii) 5967013 (iii) 614823
2. A man spends $\frac{3}{5}$ of his salary on house rent, $\frac{3}{10}$ of his salary on food and $\frac{1}{8}$ of his salary on conveyance. If he has Rs.1400 left with him, find his expenditure on house rent, food and conveyance.
3. In a mixture of 60 liters, the ratio of milk and water is 2:1. If this ratio is to be 1:2, then what quantity of water should be added?
4. Rohan took a loan of Rs.1500 with simple interest for as many years as the rate of interest. If he paid Rs.540 as interest at the end of loan period, what was the rate of interest?
5. The average of 25 student's marks is 18. The average of first twelve of students is 14 and that of the last twelve is 17. Find the marks of thirteenth student.
6. What was the day of the week on 15th August 1947?
7. Explain different types of research.
8. Distinguish between formal and distance education.



[P.T.O.]



PART - B

Answer any Four questions. Each question carries 10 marks.

(4×10=40)

9. a) The product of LCM and HCF of two numbers is 24. The difference between the two numbers is 2. Find the numbers. (5+5)
- b) Find the number of arrangements of the letters of the word INDEPENDENCE. In how many of these arrangements,
- (i) Do the words start with P?
- (ii) Do all the vowels always occur together?
10. a) If $\log 2 = 0.3010$ and $\log 3 = 0.4771$, find the values of (5+5)
- (i) $\log 25$ (ii) $\log 4.5$
- b) 'A' can do a piece of work in 7 days of 9 hours each and 'B' can do it in 6 days of 7 hours each. How long will they take to finish the work, by working together for $8 \frac{2}{5}$ hours a day?
11. a) A man travelled from the village to the post office at the rate of 25 kmph and walked back at the rate of 4 kmph. If the whole journey took 5 hours 48 minutes, find the distance of the post-office from the village. (5+5)
- b) One year ago, the ratio of Manoj and Sachin's age was 6:7. Four years hence, this ratio would become 7:8. How old is Sachin?
12. a) After two successive discounts, a tie with a list price of Rs.120 is available at Rs.90. If second discount is 9%, what is the first discount? (5+5)
- b) A Train passes a station in 36 seconds and a passes a lamppost on the platform in 20 seconds. If the speed of the train is 54 kmph, find the length of the platform.
13. a) A bag contains 6 Red and 4 Blue balls. Two balls are drawn at randomly. Find the probability that they are of the same colour. (5+5)
- b) Raju, Kushal and Virat start at same time, from the same starting point and run in the same direction on a circular ground. Raju completes a round in 250 seconds, Kushal in 300 seconds and virat in 150 seconds. Find after what time will they meet again at the starting point?
14. a) Explain the factors affecting teaching. (5+5)
- b) Distinguish between seminar, conference and symposium.
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III Semester M.C.A. Degree Examination, June/July - 2023

COMPUTER SCIENCE

Research Methodology

(CBCS Scheme Y2K20)

Paper: 3MCA3

Time : 3 Hours

Maximum Marks : 70

Instructions to candidates:

- 1) Answer any **five** questions from section-A, each question carries 6 marks.
- 2) Answer any **four** full questions from section-B, each question carries 10 marks.

SECTION - A

(5×6=30)

1. Define research and discuss the objectives of research.
2. Synthesizing and critical analysis of a problem are two important phases of research - Justify.
3. Explain the discrete probability distribution with an example.
4. Calculate the correlation coefficient of given data.

X	50	51	52	53	54
Y	3.1	3.2	3.3	3.4	3.5



5. Discuss frequency distribution.
6. Explain the steps involved in simulated annealing algorithm.
7. What is the role of SPSS in data analysis?
8. List the items in a research report and explain them briefly.

SECTION - B

(4×10=40)

9. List and explain the various steps involved in the research process.
10. Define time series and explain various components of time series.
11. Briefly explain the types of plots.
12. Discuss genetic algorithms.

[P.T.O.]



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13. Explain soft computing and learning in fuzzy systems with appropriate diagram.
 14. Mention the different types of reports, particularly pointing out the difference between a technical report and a popular report.
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III Semester M.C.A Degree Examination, June/July - 2023**COMPUTER SCIENCE****Web Programming (Elective)****(CBCS Scheme 2020-21)****Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates:**

1. Answer any **Five** full questions from Part -A. Each question carries **Six** marks.
2. Answer any **Four** full questions from Part -B. Each question carries **Ten** marks

PART-AAnswer any **Five** of the following. Each question carries **Six** marks.**(5×6=30)**

1. Explain Local storage, Web workers features in HTML5 with an example.
2. What is Event handling? Discuss synthetic events in JavaScript.
3. Discuss the features of Apache server.
4. Explain how to implement pattern matching in Ajax with an example.
5. Explain prototype inheritance in JS with an example.
6. Explain user defined functions in Java Script with example.
7. Discuss how Ajax supports Cross- Domain Access (CORS) with example.
8. Explain Http Request and Http Response Format with diagram.

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

9. a) Explain JavaScript arrays operation Discuss Array built-in functions in JavaScript with an example. **(6)**
b) Discuss Drag and Drop concept in HTML5 with examples. **(4)**

[P.T.O.]



(2)

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10. a) Explain DOM2 (Document Object Model) Model with a neat Diagram. (5)
b) Discuss Form Events in JavaScript with an example. (5)
11. Explain the following:
a) http and httpd server (6)
b) write html 5 code to insert an image and hyperlink. (4)
12. a) Discuss how to implement Cookies and Sessions in Ajax with example. (6)
b) Explain XMLHttpRequest object (4)
13. a) Explain Image-Based Ajax with example (5)
b) Compare and Discuss XML Features with HTML (5)
14. Write short note on:
a) MIME
b) Event Bubbling (5+5)
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III Semester M.C.A Degree Examination, June/July - 2023**COMPUTER SCIENCE****Big Data and Analytics (Elective)****(CBCS Y2K20 Scheme)****Paper : 3MCAE2****Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates:**

1. Part-A: Answer any **five** questions. Each carries 6 marks.
2. Part- B: Answer any **four** questions. Each carries 10 marks.

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

1. What are the characteristics of Big Data? Briefly explain the challenges in handling Big data.
2. What is the relevance of Data Reduction? Discuss briefly the various Data Reduction techniques.
3. What is Concept hierarchy? What is its significance?
4. Explain classification by Backpropagation.
5. What do you understand by web mining and Text Mining? Discuss each one briefly.
6. Explain the anatomy of the File Read and File Write operations in HDFS.
7. Illustrate and explain any six relational operators in PIG/ PIG LATIN.
8. Compare supervised Learning v/s unsupervised learning.

PART - BAnswer any **Four** questions. Each question carries **Ten** marks.**(4×10=40)**

9. a) Compare structured, semi-structured and unstructured data. **(5)**
b) What is Data preprocessing? Why is Data preprocessing necessary? **(5)**

[P.T.O.]



(2)

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(6)

10. a) Explain the Decision tree classifier.

(4)

b) Briefly discuss the issues of Classification and Prediction.

(8)

11. a) Explain Hadoop ecosystem and its components.

(2)

b) Compare SQL V/s No SQL databases

(10)

12. Write a java program using mapreduce to perform word count.

(10)

13. What is HIVE? With illustrations explain the HIVE DDL and DML commands.

14. Write short notes on:

a) HBASE

(5+5)

b) Data Analytics with R