



V Semester B.C.A. Examination, February/March 2024
(NEP Scheme)

(Freshers)

COMPUTER SCIENCE

Data Mining (Elective – I)

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer **any 4** questions from **each** Sections.

SECTION – A

I. Answer **any 4** questions. **Each** carries **2** marks. (4×2=8)

- | | |
|--|---|
| 1) Define KDD and Data mining. | 2 |
| 2) What is market basket analysis ? | 2 |
| 3) What is correlation ? | 2 |
| 4) Explain similarity measures. | 2 |
| 5) Differentiate between bottom-up and top-down strategy in hierarchical clustering. | 2 |
| 6) Define support and confidence in Association rule mining. | 2 |

SECTION – B

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

- | | |
|---|---|
| 7) With an example, explain where data mining is crucial to the success of a business. What data mining functionalities does this business need ? | 5 |
| 8) Explain Data mining process in detail. | 5 |
| 9) State Bayes Theorem. Explain Bayesian classification. | 5 |
| 10) Discuss data mining issues in detail. | 5 |
| 11) Write sampling algorithm. | 5 |
| 12) What do you understand by outliers ? Explain with an example. | 5 |





SECTION – C

III. Answer **any 4** questions. **Each** question carries **8** marks.

(4×8=32)

- 13) Discuss the tasks of data mining with an examples. 8
- 14) Explain KNN classification in detail with an example. 8
- 15) a) Using the data given below, draw OC curves assuming that the output 2 column is the correct classification and output 1 is what is seen.
Draw 3 curves. 5
- b) Construct a confusion matrix assuming output is the correct assignment and output 1 is actually made. 3

Name	Gender	Height	Output 1	Output 2
Kristina	F	1.6m	Short	Medium
Jim	M	2 m	Tall	Medium
Maggie	F	1.9m	Medium	Tall
Martha	F	1.88m	Medium	Tall
Stephanie	F	1.7m	Short	Medium
Bob	M	1.85m	Medium	Medium
Kathy	F	1.6m	Short	Medium
Dave	M	1.7m	Short	Medium
Worth	M	2.2m	Tall	Tall
Steven	M	2.1m	Tall	Tall
Debbie	F	1.8m	Medium	Medium
Todd	M	1.95m	Medium	Medium
Kim	F	1.9m	Medium	Tall
Amy	F	1.8m	Medium	Medium
Wynette	F	1.75m	Medium	Medium

- 16) Explain Algometric algorithm with an example.

8





- 17) For the following data, construct a decision tree and explain the terms Root node, Decision node, leaf node, sub pruning, parent node and child node.

8

Day	Weather	Temperature	Humidity	Wind	Play
1	Sunny	Hot	High	Weak	No
2	Cloudy	Hot	High	Weak	Yes
3	Sunny	Mild	Normal	Strong	Yes
4	Cloudy	Mild	High	Strong	Yes
5	Rainy	Mild	High	Strong	No
6	Rainy	Cool	Normal	Strong	No
7	Rainy	Mild	High	Weak	Yes
8	Sunny	Hot	High	Strong	No
9	Cloudy	Hot	Normal	Weak	Yes
10	Rainy	Mild	High	Strong	No

- 18) Explain Apriori Algorithm.

8





V Semester B.C.A. Examination, February/March 2024
(NEP Scheme) (Freshers)
COMPUTER SCIENCE
Quantitative Techniques

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer any four from each Section.

SECTION – A

I. Answer any four questions. Each question carries 2 marks. (4×2=8)

- 1) What is the divisibility rule of 8 ? Give example.
- 2) What is the LCM of $\frac{36}{225}$, $\frac{48}{150}$, $\frac{72}{65}$?
- 3) What is the value of $\sqrt{5184}$ and $\sqrt[3]{97336}$?
- 4) Find the value of $\log\left(\frac{15}{16}\right) - \log\left(\frac{27}{45}\right) + \log\left(\frac{48}{75}\right)$.
- 5) Pointing of a boy Mahesh said "He is the son of the only son of my mother".
How is Mahesh related to the boy ?
a) Father b) Cousin c) Grandmother d) None of these
- 6) How many ways the word "EQUATION" can be arranged in non-repeated letters ?

SECTION – B

II. Answer any four questions. Each question carries 5 marks. (4×5=20)

- 7) Which least number when divided by 36, 24, 16 leaves 11 as remainder in each case ?
- 8) Of the three numbers the first is twice the second and the second is thrice the third. If the average of the three numbers is 10. What is the largest number ?
- 9) Find the value of $\log_{\sqrt{7}}\left(\frac{1}{343}\right)$ and $\log_2\left(\frac{512 \times 256}{32}\right)$.



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- 10) Which day of the week was 12 March 1940 ?
- 11) Explain Article, Workshop and Seminar.
- 12) Define Teaching. Explain the characteristic involved in Teaching.

SECTION – C

III. Answer **any four** questions. **Each** question carries **8** marks. **(4×8=32)**

- 13) How many ways the word “ANIMATION” can be arranged such that
 - 1) Repeated letters
 - 2) Vowels comes together
 - 3) Consonants comes together
 - 4) Vowels never comes together. **8**
- 14) a) Explain Research. Give the characteristic and steps involved in Research. **6**
 b) Define Thesis writing. **2**
- 15) a) Explain the characteristic involved in communication. **4**
 b) Discuss about effective classroom communication. **4**
- 16) a) At what does of April 2001 did Wednesday fall ? **4**
 b) The sum of two numbers is 40 and differences between them is 4. Find the numbers in ratio. **4**
- 17) a) At what time between 30' clock and 40' clock the hands of the clock be together ? **4**
 b) A pot has 2 white, 6 black, 4 grey and 8 green balls. If one balls is picked randomly from the pot. What is the probability of being black or green ? **4**
- 18) a) Two pipes A and B can fill the tank in 4 hours and 5 hours respectively. If they opened on alternate hours and if pipe B is opened first. How many hours it will take to fill the tank ? **4**
 b) Dinesh deposit an amount of Rs. 65,800 to obtain simple interest at 14% per annum for 4 years. What is the total amount will Dinesh get at the end of 4 years ? **4**





NP – 401

V Semester B.C.A. Examination, February/March 2024
(NEP) (Freshers)
COMPUTER SCIENCE
Web Programming

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer any four questions from each Section.

SECTION – A

- I. Answer **any four** questions. **Each** question carries **2** marks. (4×2=8)
- 1) What is DOM ?
 - 2) What is a Web Server and Web Browser ?
 - 3) Differentiate between HTML and XML.
 - 4) What are dynamic documents in Web development ?
 - 5) Which data types are supported in PHP ?
 - 6) What is function ? How to define it in PHP ?

SECTION – B

- II. Answer **any four** questions. **Each** question carries **5** marks. (4×5=20)
- 7) What are events and how are they handled in JavaScript ?
 - 8) Design an HTML form to accept username and password and perform validation using JavaScript.
 - 9) Discuss the role of XSLT style sheets in displaying and transforming XML documents.
 - 10) Explain various looping statements in PHP with an example.
 - 11) What are cookies ? How to create and delete a cookie in PHP ?
 - 12) List and explain all types of date and time function in PHP.



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SECTION – C

- III. Answer **any four** questions. **Each** question carries **8** marks. (4×8=32)
- 13) Explain the method and properties used for DOM tree traverse and modify using JavaScript. 8
- 14) What are the various methods to access the HTML form elements using JavaScript ? 8
- 15) Write a short note on
- a) DTD
 - b) XML Schema. (4+4)
- 16) a) Compare the uses of echo and print commands in PHP.
b) Differentiate between constant and variable in PHP. (4+4)
- 17) Outline the steps involved in connecting to a database using PHP. 8
- 18) Explain in detail different types of arrays in PHP with examples. 8
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V Semester B.C.A. Degree Examination, February/March 2024

(NEP) (Freshers)

COMPUTER SCIENCE

Data Analytics

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer *all* the Sections.

SECTION – A

I. Answer **any four** questions. **Each** question carries **two** marks. **(4×2=8)**

- 1) Define the term Data Analytics.
- 2) Name any four data visualization tools used.
- 3) Explain the term Normal Distribution.
- 4) Define the following events :
 - i) Mutually exclusive
 - ii) Equally likely.
- 5) What is power query ?
- 6) What are Filters in Power BI ?

SECTION – B

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

- 7) Write a note on Data Analytics Life Cycle.
- 8) Define Hypothesis. Explain the purpose of ANOVA in Hypothesis testing.
- 9) What are the various steps involved in any Analytics Project ?
- 10) State and prove Baye's Theorem.
- 11) The owner of Maume Ford-volvo wants to study the relationship between the age of a car and its selling price. Listed below is a random sample of 10 used cars sold at the dealership during last year.

Age (years)	9	7	11	12	8	7	8	11	10	12
Selling Price (\$000)	8.1	6.0	3.6	4.0	5.0	10.0	7.6	8.6	8.0	6.0

Calculate the correlation coefficient between car's age and its sale price.

- 12) What are the advantages of Power BI ?



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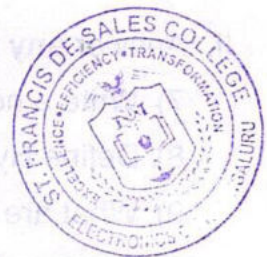
SECTION – C

III. Answer **any four** questions. **Each** question carries **eight** marks. **(4×8=32)**

- 13) With an example explain the different types of analytics.
- 14) With a case study explain how analytics has helped the food industry to improve their business.
- 15) Define regression. Find the two regression equations for the data of 10 students in two subjects given below :

English	75	80	93	65	87	71	98	68	89	77
Economics	82	78	86	72	91	80	95	72	89	74

- 16) a) What are the various types of refresh options provided in power BI ? **(3+5)**
 b) What are the building blocks of Microsoft Power BI ? Explain.
- 17) a) What is the purpose of COUNT, COUNTA, COUNTBLANK and COUNTIF in Excel ? **(4+4)**
 b) List the difference between Logistic Regression and Linear Regression.
- 18) a) Differentiate between Dashboard and Reports. **(4+4)**
 b) Explain the different visualisation techniques used for spatial data.



Age (years)	9	7	11	12	8	7	8	11	10	12
Selling Price (2009)	8.1	8.0	8.8	4.0	2.0	10.0	7.8	8.8	8.0	8.0



NP – 399

**V Semester B.C.A. Examination, February/March 2024
(NEP) (Freshers)
COMPUTER SCIENCE
Artificial Intelligence**

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer any 4 questions from each Parts.

PART – A

I. Answer any four questions. Each question carries 2 marks. (4×2=8)

- 1) List any two weak AI and strong AI.
- 2) Explain the properties of minmax algorithm.
- 3) Define implication with truth table.
- 4) List different types of learning.
- 5) Define any two disadvantages of Fuzzy logic.
- 6) What do you mean by clustering ? List any two popular clustering algorithm.

PART – B

II. Answer any four questions. Each question carries 5 marks. (4×5=20)

- 7) Explain agents and its environment with a neat diagram.
- 8) Explain backward chaining with an example.
- 9) Explain decision trees.
- 10) Explain any 5 applications of computer vision.
- 11) Explain left most and right most derivation. Construct parse tree with an example.
- 12) Explain any five characteristic of expert system.



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PART - C

- III. Answer **any four** questions. **Each** question carries **8** marks. **(4x8=32)**
- 13) a) Explain 8-queens problem with a neat diagram. 5
b) List any three advantages of A* search. 3
- 14) a) Define unification in FOL. Write the pseudocode of unification. 6
b) What do you mean by chunking in NLP ? 2
- 15) a) Explain Bayes' Theorem in AI. 6
b) What is uncertainty in AI ? 2
- 16) Explain the architecture of ANN with a neat diagram. 8
- 17) a) Briefly explain machine learning life cycle. 5
b) List 3 disadvantages of Robotics. 3
- 18) a) Explain how to build NLP pipeline with example. 6
b) Define non-monotonic logic. 2





V Semester B.C.A. Examination, February/March 2024
(NEP Scheme) (Freshers)
COMPUTER SCIENCE
Cyber Security (SEC)

Time : 2½ Hours

Max. Marks : 60

Instruction : Answer any four questions from each Section.

SECTION – A

Answer **any 4** questions. **Each** carries **two** marks.

(4×2=8)

1. Define cyber space.
ಸೈಬರ್ ಸ್ಪೇಸ್ ಅನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.
2. What do you mean by digital security ?
ಡಿಜಿಟಲ್ ಭದ್ರತೆ ಎಂದರೇನು ?
3. Briefly explain the concept of social media privacy.
ಸಾಮಾಜಿಕ ಮಾಧ್ಯಮದ ಗೌಪ್ಯತೆ ಬಗ್ಗೆ ಪರಿಕಲ್ಪಿಸಿ.
4. What is internet society ?
ಇಂಟರ್‌ನೆಟ್ ಸಮಾಜ ಎಂದರೇನು ?
5. What is malware ?
ಮಾಲ್ವೇರ್ ಎಂದರೇನು ?
6. Define E-Commerce.
ಇ-ಕಾಮರ್ಸ್ ಅನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.

SECTION – B

Answer **any 4** questions. **Each** carries **five** marks.

(4×5=20)

7. Discuss the challenges associated with cyber crimes against women and children.
ಮಹಿಳೆಯರು ಮತ್ತು ಮಕ್ಕಳ ವಿರುದ್ಧ ಸೈಬರ್ ಅಪರಾಧಗಳ ಸವಾಲುಗಳ ಬಗ್ಗೆ ಚರ್ಚಿಸಿ.
8. Including UPI and Wallet, explain the various forms of digital payment.
ಯುಪಿಐ ಮತ್ತು ವಾಲ್‌ಲೆಟ್ ಒಳಗೊಂಡು ವಿವಿಧ ರೀತಿಯ ಡಿಜಿಟಲ್ ಪಾವತಿಗಳ ಬಗ್ಗೆ ವಿವರಿಸಿ.



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9. List the advantages and disadvantages of E-Commerce.
ಇ-ಕಾಮರ್ಸ್‌ನ ಅನುಕೂಲಗಳು ಹಾಗೂ ಅನಾನುಕೂಲಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.
10. Explain social engineering attacks in detail.
ಸಾಮಾಜಿಕ ಇಂಜಿನಿಯರಿಂಗ್ ದಾಳಿಯ ಬಗ್ಗೆ ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.
11. Explain the best practices for the use of social media.
ಸಾಮಾಜಿಕ ಮಾಧ್ಯಮಗಳನ್ನು ಬಳಸುವ ಒಳ್ಳೆಯ ಅಭ್ಯಾಸಗಳನ್ನು ತಿಳಿಸಿ.
12. Discuss the key components of an effective password policy and their role in enhancing security.
ಗುಪ್ತಪದದ (ಪಾಸ್‌ವರ್ಡ್‌) ಪ್ರಮುಖ ಭಾಗಗಳನ್ನು ತಿಳಿಸಿ ಮತ್ತು ಭದ್ರತೆ ಕಾಪಾಡುವುದರಲ್ಲಿ ಅದರ ಪಾತ್ರವನ್ನು ವಿವರಿಸಿ.

SECTION – C

Answer **any four** questions. Each carries **eight** marks.

(4×8=32)

13. Discuss the historical evolution of the internet and its impact on cyber space.
ಇಂಟರ್‌ನೆಟ್‌ನ ಐತಿಹಾಸಿಕ ವಿಕಾಸ ಮತ್ತು ಸೈಬರ್ ಸ್ಪೇಸ್‌ನ ಮೇಲೆ ಅದರ ಪ್ರಭಾವವನ್ನು ಚರ್ಚಿಸಿ.
14. Explain different types of cyber crimes, emphasizing those targeting computers and mobiles.
ಸೈಬರ್ ಕ್ರಿಮಿನ ಬಗೆಗಳನ್ನು ತಿಳಿಸಿ ಹಾಗೂ ಕಂಪ್ಯೂಟರ್ ಮತ್ತು ಮೊಬೈಲ್‌ಗಳ ಮೇಲಿನ ಕ್ರಿಮಿ ಬಗ್ಗೆ ಒತ್ತು ನೀಡಿ.
15. Explain the legal perspective of cyber crime, focusing on the IT Act-2000 and its amendments.
ಮಾಹಿತಿ ತಂತ್ರಜ್ಞಾನ ಕಾಯ್ದೆ - 2000 ಹಾಗೂ ಅದರ ತಿದ್ದುಪಡಿ ಬಗ್ಗೆ ಸೈಬರ್ ಕ್ರಿಮಿನ ಕಾನೂನಿನ ದೃಷ್ಟಿಕೋನದಿಂದ ವಿವರಿಸಿ.
16. With a neat diagram, explain the architecture of cyber space.
ಸೈಬರ್ ಸ್ಪೇಸ್‌ನ ವಾಸ್ತುಶಿಲ್ಪವನ್ನು ರೇಖಾಚಿತ್ರದ ಮುಖಾಂತರ ವಿವರಿಸಿ.
17. Discuss the challenges, opportunities and pitfalls associated with online social network.
ಆನ್‌ಲೈನ್ ಸಾಮಾಜಿಕ ಜಾಲಬಂಧಗಳ ಸವಾಲುಗಳು, ಅವಕಾಶಗಳು ಮತ್ತು ಮೋಸಗಳ ಬಗ್ಗೆ ವಿಶ್ಲೇಷಿಸಿ.
18. Write short notes on the following :
ಈ ಕೆಳಗಿನ ವಿಷಯಗಳಿಗೆ ಲಘು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ :
- | | | |
|--------------|----------|------------------|
| a) Hacking | b) Wi-fi | c) Hashtag |
| a) ಹ್ಯಾಕಿಂಗ್ | b) ವೈ-ಫೈ | c) ಹ್ಯಾಶ್‌ಟ್ಯಾಗ್ |

(3+3+2)

