S–2951

Sub. Code
23BAI1C1

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Artificial Intelligence

PROGRAMMING FOR PROBLEM SOLVING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. What is a CPU?

2. Write a note on RAM.

3. Show the order of execution of a mathematical expression in 'C' with an example.

4. How do you declare a constant in 'C'?

5. What is an array?

6. How will you define a string in 'C'?

7. Define a function.

8. Provide the disadvantages of functions in 'C'.

9. Does 'C' programming language has 'structures'?

10. Write the general form of pointers.

Part B (5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) Discuss about the five generations of computers.

Or

(b) Provide the steps involved in creating a 'C' program.

12. (a) With examples, explain the arithmetic operators in 'C'.

Or

(b) When will you use the switch statement in 'C'?

13. (a) Explain the linear search using a programming example.

Or

(b) Write a note on bubble sort algorithm.

14. (a) With coding examples, explain a function in 'C'.

Or

(b) Describe the procedure of accessing a function.

15. (a) Write a 'C' program to demonstrate the use of structure.

Or

(b) Provide the use of pointers in 'C'.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. List and explain with examples, the types of computers in detail.

17. With a programming example, explain in detail the 'For' statement in 'C'.

18. Elaborate on the working of strings in 'C' programming.

19. Write a 'C' program that demonstrates the recursive function.

20. Elucidate the advantages and disadvantages of using structures in 'C'.

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S–2952

Sub. Code
23BAIA1

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Artificial Intelligence

Allied – DIGITAL LOGIC FUNDAMENTALS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. Write a note on binary number system.
2. Provide an example of a decimal number.
3. What is the use of Boolean algebra?
4. Explain inversion property.
5. How is combinational logic circuit defined?
6. Why digital circuits called logic circuits?
7. Draw the block diagram of a AND gate using 2: 1 Mux.
8. Write any two types of shift registers.
9. Provide the use of a counter.
10. Write the advantages of ripple counter.

Part B (5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) Explain with examples, base conversion.

Or

(b) Write a note on logic gates.

12. (a) Show the commutative law of Boolean algebra.

Or

(b) List the De-Morgan's theorems.

13. (a) With a block diagram, explain sequential circuits.

Or

(b) Explain in brief, encoders.

14. (a) Discuss about T flip flop with its diagram and truth table.

Or

(b) Write a note on shift registers in digital logics.

15. (a) Describe in brief Synchronous Counter.

Or

(b) Write about ring counter.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail Universal Gates and its truth tables.

17. With examples, explain in detail Karnaugh Maps.

18. Elaborate on de-multiplexers in digital logic in detail.

19. Explain in detail the Master-Slave flip flops.

20. Elucidate Read Only Memory and its types in detail.

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S–2953	Sub. Code
	23BAI1S1

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Artificial Intelligence

FUNDAMENTALS OF INFORMATION TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define the term computing.
2. What art logical operations?
3. How will you define a folder?
4. Is grammar check a feature of MS-WORD?
5. Why should we use formulae in MS-Excel?
6. Does MS-Excel be compared to spreadsheet?
7. Show the purpose of slides in PowerPoint.
8. Discuss about the slide view.
9. Write a note on intranet.
10. Do we have extranet used in today's context?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define the basic parts of a computer.

Or

(b) List the difference between data and information.

12. (a) Write a note on the features of table insertion in MS-Word.

Or

(b) Provide the steps involved in inserting objects in a MS-Word document.

13. (a) How will you generate a formula in MS-Excel?

Or

(b) Explain the insertion of charts in MS-Excel.

14. (a) Discuss about the inserting multimedia objects in PowerPoint.

Or

(b) Describe in brief about the slide animations in PowerPoint.

15. (a) Elaborate on the role of a browser in the context of internet.

Or

(b) Do we need URL to browse the web? Explain.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elaborate in detail on the various output devices of a computer.

17. Bring out a detailed study on the mail merge feature of MS-Word.

18. Elucidate the features of filter and sorting in MS-Excel.

19. Discuss about the utilization of inserting Video objects in PowerPoint in detail.

20. Describe in detail the basic components of E-mail.

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S–2954

Sub. Code
23BAI1FC

B.Sc. DEGREE EXAMINATION, APRIL 2024.

First Semester

Artificial Intelligence

OFFICE AUTOMATION

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is memory?

2. In memory, what do you mean by nibble?

3. List the main purpose of word application.

4. Name the types of alignments that you can perform in a paragraph.

5. Do we have rows and columns in an Excel sheet?

6. Write the file formats used in Excel.

7. Define data.

8. How will you explain a table in a database?

9. Provide the use of PowerPoint.

10. Show the method of saving a PowerPoint file.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Define cache memory briefly.

Or

(b) Write the functionalities of an operating system.

12. (a) Provide the steps involved in the 'Find and Replace' functionality.

Or

(b) With an example, explain indentation.

13. (a) Discuss about including formula in an Excel sheet.

Or

(b) Show the steps involved in printing a Excel sheet.

14. (a) Describe briefly about sorting.

Or

(b) With examples, explain records in a database table.

15. (a) Elaborate on the print option available in PowerPoint.

Or

(b) Define the normal view of PowerPoint.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the characteristics of operating systems.

17. Bring out a detailed study on Header and Footer with examples.

18. Write a detailed note on preparing charts in Excel.

19. Elaborate on the designing of queries in a database.

20. Elucidate on setting time for a PowerPoint presentation.

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S–2955

Sub. Code
23BAI2C1

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Artificial Intelligence

PYTHON PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. What is Python?
2. Write a Python code to print “Hello World”.
3. Define a function.
4. How do you call a function in Python?
5. Two types of files can be handled in Python. Name them.
6. What is the purpose of readline( ) function.
7. Define a list in Python.
8. Show the use of extend( ) method in Python.
9. Provide the benefits of using classes in Python.
10. How will you define inheritance?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a note on string concatenation in Python.

Or

(b) With examples, define sets in Python.

12. (a) Write a Python program to demonstrate the use of a function.

Or

(b) Discuss about the Math module in Python.

13. (a) Write a Python program to find the index of the string in the text file using readline( ).

Or

(b) Explain the '+' operator that is used to concatenate strings.

14. (a) Describe in brief dictionary in Python.

Or

(b) Define the types of literals in Python.

15. (a) Discuss briefly about functions in python.

Or

(b) How will you manage a program's namespace in Python?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe in detail floating-point numbers with code examples.

17. Write a detailed note on Multi-way If statements in Python with examples.

18. Discuss in detail the writing text to a file with coding examples.

19. Elaborate on the difference between lists and dictionary in Python.

20. Elucidate in detail on problem solving with top-down design.

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S–2956	Sub. Code
	23BAIA2

B.Sc. DEGREE EXAMINATION, APRIL 2024

Artificial Intelligence

Allied – DATA SCIENCE AND ANALYTICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. What is data science?
2. Do we need statistics for data science?
3. In what way Data is cleansed?
4. Define data reduction.
5. What does EDA refer to?
6. Expand ANOVA.
7. Write about training dataset.
8. How will you define residual plot?
9. Provide the definition of overfitting.
10. Write about model selection.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write a note on the evolution of data science.

Or

(b) List the various applications of data science.

12. (a) Discuss about the data collection strategies.

Or

(b) Why do we need pre-processing of data? Elaborate.

13. (a) Explain about univariate analysis.

Or

(b) Define data visualization.

14. (a) In how many ways do we divide datasets to build a model? Explain.

Or

(b) Name and explain the categories of data visualization.

15. (a) Describe in brief generalization error.

Or

(b) Do we really need underfitting? Describe.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail the security issues in data science.

17. Describe data integration and transformation in detail.

18. Discuss in detail about correlation statistics.

19. Elaborate on the measures for in-sample evaluation.

20. Elucidate on the aspects of prediction by using ridge regression.

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S–2957

Sub. Code
23BAIA3

B.Sc. DEGREE EXAMINATION, APRIL 2024

Artificial Intelligence

Allied – R PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions

1. What is R?
2. Is R programming language an open source?
3. How will you define matrices in R?
4. Discuss about feature selection in R.
5. What are data frames?
6. Which symbol is used to access items from a data frame?
7. How are classes interpreted in R?
8. Can we read a .CSV file using R?
9. Provide the purpose of runModel(par) function.
10. Expand BLAS.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) List the features of R programming language.

Or

(b) Write the advantages of R programming language.

12. (a) Provide the basic syntax for creating a matrix in R.

Or

(b) Discuss about dimensionality reduction in R.

13. (a) Explain environment and scope issues in R.

Or

(b) Define briefly about returning Boolean values in R.

14. (a) How do strings manipulated in R? Explain.

Or

(b) Describe briefly about creating graphs in R.

15. (a) Discuss briefly on linear models.

Or

(b) Write a note on generalized linear models.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the various R data structures in detail.

17. With code snippets, define in detail accessing elements of a matrix in R.

18. List and explain in detail math and simulation in R.

19. Explain in detail the method involved in creating three-dimensional plots.

20. Elucidate time series and auto-correlation using R in detail.

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S–2958

Sub. Code
23BAIA4

B.Sc. DEGREE EXAMINATION, APRIL 2024

Artificial Intelligence

Allied – MACHINE LEARNING BASICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. How can you define machine learning?
2. Is machine learning a sub field of artificial intelligence?
3. What kind of learning is decision trees?
4. Define a hypothesis in machine learning.
5. Does neural network behave like human brain?
6. Show the relationship between artificial intelligence and face recognition.
7. Name any one unsupervised learning method.
8. Write the definition of clustering.
9. What is the name provided to the Gaussian mixture model?
10. Can we use Bayes' theorem to construct statistical models?

Part B (5 × 5 = 25)

Answer **all** the questions choosing either (a) or (b).

11. (a) Provide examples of machine learning applications.

Or

(b) Write a note on unsupervised learning.

12. (a) Provide the advantages of decision trees.

Or

(b) Discuss about inductive bias.

13. (a) What is perception? Explain.

Or

(b) Define multilayer neural networks.

14. (a) List out the prerequisites for mixture density networks.

Or

(b) Explain briefly K-Means clustering.

15. (a) Describe briefly about Bayes theorem.

Or

(b) Write a note on Bayes optimal classifier.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Bring out a detailed study on Vapnik-Chervonenkis dimension.

17. Elaborate on the basic decision tree learning algorithm.

18. Elucidate in detail on Backpropagation algorithm.

19. Describe the maximization algorithm in detail.

20. Discuss in detail Bayesian belief networks.

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S–2959

Sub. Code
23BAI2S1

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Second Semester

Artificial Intelligence

INTRODUCTION TO HTML

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What do you mean by internet?
2. Show the purpose of a browser.
3. Do we have a Head part in HTML program?
4. What is a HTML tag?
5. Is it possible to create numbering in a HTML program?
6. Provide the use of <HR> tag.
7. How do you define a table heading in HTML?
8. Can we align cells with a HTML table?
9. What is a frame?
10. Write the tag to create a frameset.

Part B (5 × 5 = 25)

Answer **all** the questions choosing either (a) or (b).

11. (a) Write about the history of HTML.

Or

(b) Provide the structure of a HTML program with an example.

12. (a) How do you structure text in a HTML program?

Or

(b) Explain the various heading tags.

13. (a) Discuss about ordered list in HTML.

Or

(b) How will you use marquee in HTML?

14. (a) Create a table in HTML with 5 rows and 5 columns.

Or

(b) Write a note on row span in HTML.

15. (a) How many frames can be created in a HTML file? Explain.

Or

(b) Create a LOGIN form using HTML.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail World Wide Web.

17. Write a HTML program to display the various Head tags in HTML.

18. Discuss in detail the usage of image in HTML with programming examples.

19. Bring out a detailed study on the creation of HTML tables.

20. Write a note on creating forms in HTML using a program.

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S–2960	Sub. Code
	23BAI2S2

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Artificial Intelligence

MULTIMEDIA SYSTEMS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define multimedia.
2. Provide the composition of multimedia.
3. What do you mean an image?
4. Expand GIF.
5. How will you define analog audio?
6. Write about signal to noise ration.
7. Discuss the definition of animation.
8. Write short notes on digital video.
9. What is a multimedia project?
10. Does computer projects done in phases.

Part B (5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) List the uses of multimedia.

Or

(b) Write a note on text as a medium in multimedia.

12. (a) Discuss in brief Windows Meta File.

Or

(b) How do you make still images? Explain.

13. (a) Describe sampling in multimedia audio.

Or

(b) With a diagram explain PCM demodulation.

14. (a) What do you mean by solid drawing? Discuss.

Or

(b) Provide the uses of video in multimedia

15. (a) Why do we need different stages in a multimedia project? Elaborate.

Or

(b) What is the need for various software for a multimedia project? Elucidate.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Bring out a detailed study on the tools used for text font editing.

17. Elaborate in detail on the formats for images.

18. Elucidate on Vaughan's law of multimedia minimums in detail.

19. Describe the principles of multimedia animation.

20. Discuss in detail the hardware needs of a multimedia project.

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