

**FOUR YEAR B.A./B.Com./B.Sc./B.C.A./B.B.A./B.Music/B.Dance/B.A.(O.L)/B.H.M/
B.VOCATIONAL IN DAIRYING AND ANIMAL HUSBANDRY/
B.VOCATIONAL IN HORTICULTURE (ALL GROUPS) DEGREE
EXAMINATION, APRIL/MAY - 2026
CHOICE BASED CREDIT SYSTEM
FOURTH SEMESTER
PART - I(C) : LIFE SKILL COURSE
PAPER - III : CYBER SECURITY
(Under CBCS New Regulation w.e.f. the academic year 2024-25)**

Time : 1½ Hours

Max. Marks : 50

**Answer any Five questions. Each question carries equal marks. (Essay questions).
(5×10=50)**

1. Discuss the definition of cybercrime and explain its origins.
2. Explain the classifications of cybercrimes with suitable examples.
3. Write an essay on cybercrime and the Indian IT Act 2000.
4. Discuss the global perspective on cybercrimes and their impact on society.
5. Explain credit card frauds in the mobile and wireless computing era.
6. Write an essay on organizational measures for handling mobile device security issues.
7. Discuss the role of organizational security policies in mobile computing.
8. Explain password cracking techniques and their implications in cybercrime.
9. Write an essay on phishing attacks and preventive measures.
10. Discuss identity theft and its impact on individuals and organizations.

FOUR YEAR HONOURS DEGREE EXAMINATION, APRIL/MAY - 2026

FOURTH SEMESTER

PART - MULTIDISCIPLINARY COURSES

PAPER - INTRODUCTION TO NANOTECHNOLOGY

Time : 1½ Hours

Max. Marks : 50

Answer any Five of the following questions

(5×10=50)

1. Define nanotechnology. Discuss its scope and interdisciplinary nature.
 2. Explain the historical development and key milestones in nanotechnology.
 3. Describe nanoscale science and explain quantum effects and surface-to volume ratio.
 4. Explain different types of nanomaterials with suitable examples.
 5. Describe top-down fabrication techniques such as lithography and etching.
 6. Explain bottom-up fabrication methods including self-assembly and molecular nanotechnology.
 7. Discuss environmental and health impacts of nanotechnology.
 8. Explain ethical considerations and societal implications of nanotechnology.
 9. Describe regulatory frameworks and safety standards in nanotechnology.
 10. Discuss applications of nanotechnology in medicine, electronics, and energy sectors.
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**FOUR YEAR B.C.A. (HONOURS) (DATA SCIENCE/ARTIFICIAL
INTELLIGENCE/ BIG DATA/CLOUD COMPUTING/GENERAL)**

DEGREE EXAMINATION, APRIL/MAY - 2026

CHOICE BASED CREDIT SYSTEM

FOURTH SEMESTER - MAJOR

PART - II

PAPER - 9 : PYTHON PROGRAMMING

(Under CBCS New Regulation w.e.f. the academic year 2024-25)

Time : 3 Hours

Max. Marks : 75

SECTION - A
(Short Questions)

Answer any Five of the following questions. Each question carries equal marks.

(5×3=15)

1. Define Python identifiers with examples.
2. What is the role of indentation in Python?
3. Explain the use of break and continue statements.
4. What are string handling functions in Python?
5. Define recursive functions with an example.
6. What is meant by inheritance in Python OOP?
7. Write a short note on exception handling in Python.
8. What are list methods? Give examples.
9. Define NumPy array indexing.
10. What is the purpose of line chart in Matplotlib?

SECTION - B
(Essay Questions)

Answer any Five of the following questions. Each question carries equal marks.

(5×12=60)

11. Discuss the features of Python that make it different from procedural languages.
 12. Explain flow of control in Python with examples of selection and repetition.
 13. Write an essay on functions in Python including built-in, user-defined, and recursive functions.
 14. Discuss object-oriented programming in Python with examples of classes, inheritance, and polymorphism.
 15. Explain exception handling in Python and compare it with Java exception handling.
 16. Write an essay on lists, tuples, and dictionaries with examples of operations and methods.
 17. Discuss NumPy operations such as concatenation, reshaping, and statistical functions.
 18. Explain data handling using Pandas with importing/exporting CSV files.
 19. Write an essay on plotting data using Matplotlib with examples of bar chart, histogram, and scatter chart.
 20. Discuss database connectivity in Python with MySQL and its advantages over other databases.
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FOUR YEAR HONOURS B.C.A. (Artificial Intelligence) DEGREE

EXAMINATION, APRIL/MAY - 2026

CHOICE BASED CREDIT SYSTEM

FOURTH SEMESTER - MAJOR

PART - II

PAPER - 10 : PROLOG

(Under CBCS New Regulation w.e.f. the academic year 2024-25)

Time : 3 Hours

Max. Marks : 75

SECTION - A

(Short Questions)

Answer any Five of the following questions. Each question carries 3 marks.

(5×3=15)

1. Define recursive rule definition in Prolog with an example.
2. What is meant by declarative meaning of a Prolog program?
3. Explain the monkey and banana problem in Prolog.
4. What is the significance of order of clauses in Prolog?
5. Write a short note on list representation in Prolog.
6. What is the role of operator notation in Prolog arithmetic?
7. Define the cut operator in Prolog.
8. What is meant by consult and reconsult in Prolog?
9. Explain the use of arg predicate in Prolog.
10. What is the purpose of bagof in Prolog?

SECTION - B

(Essay Questions)

Answer any Five questions. Each question carries 12 marks.

(5×12=60)

- 11.** Discuss the example program of family relations in Prolog. How can rules extend the program?
 - 12.** Explain the difference between declarative and procedural meaning of Prolog programs with examples.
 - 13.** Write an essay on lists and their operations in Prolog. Illustrate with examples.
 - 14.** Describe the eight queens problem and its solution using Prolog.
 - 15.** Explain the use of cut and negation as failure in preventing backtracking.
 - 16.** Discuss input and output communication with files in Prolog.
 - 17.** Write an essay on constructing and decomposing terms using arg and name.
 - 18.** Explain the role of bagof, setof, and findall in Prolog programming.
 - 19.** Discuss the general principles of good programming in Prolog.
 - 20.** Evaluate the importance of debugging and efficiency in Prolog programming style.
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FOUR YEAR B.C.A. (HONOURS) (DATA SCIENCE) DEGREE**EXAMINATION, APRIL/MAY - 2026****CHOICE BASED CREDIT SYSTEM****FOURTH SEMESTER - MAJOR****PART - II****PAPER - 11 : STATISTICAL TECHNIQUES***(Under CBCS New Regulations w.e.f. the academic year 2024-25)**(Statistical tables and Electronic Calculators are allowed)***Time : 3 Hours****Max. Marks : 75****SECTION - A****Answer any Five of the following questions. Each question carries equal marks.****(5×3=15)**

- Calculate mean deviation from median for given data
X: 5 10 15 20 25
- Calculate Range for the given data
X: 5 10 15 20 25 30
F: 2 8 15 30 20 10
- Given mean = 20, Standard deviation = 2. Find coefficient of variation.
- If $\sum (X - \bar{X})^2 = 100$, $n = 10$ Find standard deviation.
- Explain Skewness
- If $Q_3 + Q_1 = 80$, $Q_3 - Q_1 = 150$, Median(M) = 15. Find Bowley's coefficient of skewness.
- If covariance between X and Y ($\text{Cov}(X, Y) = 4.8$), Standard deviation of X is 4 the standard deviation of Y is 3. Then find Karl Pearson's correlation coefficient between X and Y is ?
- Define correlation with example.
- Given Base period price : 20 40 30 50 20
Current period price : 30 50 20 60 80
Find the price Index number using simple aggregate method.
- If Given $\sum p_1 q_0 = 80$, $\sum p_0 q_1 = 70$, $\sum p_1 q_1 = 75$, $\sum p_0 q_0 = 65$. Find price index number by Fisher.

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(1)

[P.T.O.]

A	20	10	50	7
B	40	8	60	9
C	30	7	40	8
D	50	6	30	5

20. Show that Fisher's index number satisfies time and Factor Reversal Test for given data

Items	2000		2002	
	Price	Quantity	Price	Quantity
P	40	10	60	7
Q	60	8	30	5
R	30	9	50	8

18. Calculate coefficient of variation for given data

CI : 0-10 10-20 20-30 30-40 40-50

F : 2 5 8 3 2

19. Find Laspeyre's and Paasche's price index number for given data

Items	Base Period		Current Period	
	Price	Quantity	Price	Quantity
A	20	10	50	7
B	40	8	60	9
C	30	7	40	8
D	50	6	30	5

20. Show that Fisher's index number satisfies time and Factor Reversal Test for given data

Items	2000		2002	
	Price	Quantity	Price	Quantity
P	40	10	60	7
Q	60	8	30	5
R	30	9	50	8

$$\frac{1290}{1150} \times \frac{970}{820}$$

FOUR YEAR B.Sc. (HONOURS) DEGREE EXAMINATION, APRIL/MAY-2026

CHOICE BASED CREDIT SYSTEM

FOURTH SEMESTER - MINOR

PART-II : ELECTRONICS

PAPER : MICRO CONTROLLER SYSTEM

(Under CBCS New Regulation w.e.f. the Academic year 2024-25)

Time : 3 Hours

Max. Marks : 75

SECTION - A

Answer any Five questions. Each question carries 5 marks.

(5×5=25)

1. Define microcontroller.
2. List differences between microprocessor and microcontroller.
3. What is PSW register in 8051?
4. Define addressing modes.
5. What is stack in 8051?
6. List types of interrupts in 8051.
7. What is DAC?
8. Define LCD interfacing.
9. What is timer?
10. What is assembler?

SECTION - B

Answer the following questions. Each question carries 10 marks

(5×10=50)

11. a) Explain 8051 architecture with block diagram.
(OR)
b) Explain memory organization of 8051.

- 12) a) Explain addressing modes with examples.
(OR)
b) Explain arithmetic and logical instructions of 8051.
- 13) a) Write ALP for addition of two numbers.
(OR)
b) Write ALP for subtraction.
- 14) a) Explain interfacing of 7-segment display.
(OR)
b) Explain LCD interfacing.
- 15) a) Explain stepper motor interfacing.
(OR)
b) Explain temperature measurement using LM35.
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FOUR YEAR B.Sc. HONOURS DEGREE EXAMINATION,

APRIL/MAY - 2026

CHOICE BASED CREDIT SYSTEM

FOURTH SEMESTER - MINOR

PART-II : ELECTRONICS

PAPER : MICRO PROCESSOR SYSTEMS

(Under CBCS New Regulation w.e.f. the academic year 2024-25)

Time : 3 Hours

Max. Marks : 75

SECTION - A

Answer any Five of the following questions. Each question carries 5 marks.

(5×5=25)

1. Define microprocessor system.
2. Explain ALU functions.
3. What is register organization?
4. Define addressing modes.
5. Explain stack pointer.
6. Define interrupt.
7. What is DMA?
8. Define serial communication.
9. Explain ARM processor.
10. Define ASCII and BCD.

SECTION - B

Answer the following questions. Each question carries 10 marks

(5×10=50)

11. a) Explain 8085 architecture.

(OR)

- b) Explain pin configuration of 8085.

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(1)

[P.T.O.]

12. a) Explain all instruction types with examples.

(OR)

b) Explain branch instructions and machine control instructions.

13. a) Write ALP for addition and subtraction.

(OR)

b) Write ALP for BCD to ASCII conversion.

14. a) Explain parallel communication.

(OR)

b) Explain programmable timers.

15. a) Explain ARM architecture.

(OR)

b) Explain ARM instruction set.
