

END SEMESTER EXAMINATION, DECEMBER - 2024
BCA/B. Sc. (Hons.) in Data Science Semester – I

Course Name: Fundamentals of Accounting and Finance

Course Code: BMD112/MD111T

Time allotted: 03 Hours

Max. Marks: 100

Note: Read all the instructions carefully.

Q.1 VERY SHORT ANSWER QUESTIONS – Attempt All.

(2x10 = 20 Marks)

- a. Define accounting?
- b. Explain the terms debtors and creditors.
- c. Explain the concept of materiality.
- d. State the meaning of real account?
- e. Write the formula of current ratio.
- f. Journal entries: Commence business with cash 20000.
- g. Journal entries : Purchased goods on credit from Ajay ` 10,000
- h. Journal entries: Cash sales 7000.
- i. Journal entries: Rent paid 800.
- j. Journal entries: Commission received 800.

Q.2 SHORT ANSWER QUESTIONS – Attempt any Five.

(4x5 = 20 Marks)

- a. What are the golden rules of debit and credit?
- b. What are the major classification of ratios? Explain
- c. Which accounts are to be drawn in final accounts draw the format of trading a/c ?
- d. Define margin of safety.
- e. What are the objectives of financial management?
- f. What are the errors which are not disclosed by trial balance?
- g. Draw the format of balance sheet.

Q.3 STRUCTURED QUESTIONS – Attempt any Three.

(3x10 = 30 Marks)

- a. Explain the functions of the finance manager.
- b. Who are the various users of accounting information? Explain.
- c. Explain the application of CVP analysis in decision making.
- d. Differentiate between book keeping and accounting.

Q.4 Case Analysis/ Situation Based QUESTIONS – Attempt any Two.

(2x15 = 30 Marks)

- a. Explain all concepts and conventions of accounting.
- b. What do you understand by CVP analysis? Explain its disadvantages.
- c. What do you understand by the term ratio analysis? explain its advantages and disadvantages

END SEMESTER EXAMINATION, DECEMBER - 2024**B.Sc. (Hons.) in Data Science Semester - I****Course Name: Digital Electronics****Course code: BDS114****Time allotted: 03 Hours****Max. Marks: 100****Note: Read all the instructions carefully.****Q. 1. Objective Type: Very short answer questions. Attempt all.****(10 x 2 = 20)**

a.	Convert the following number to Octal: $(431)_5$	C.O. - 01
b.	Convert $(647)_{10}$ to binary.	C.O. - 01
c.	Perform A-B using the 2's complement: $A = 10110001$ and $B = 10101100$	C.O. - 01
d.	Why do we reduce the Boolean expressions?	C.O. - 02
e.	List the truth table of the function: $F = B + A'C'$	C.O. - 02
f.	$A = 10110001$ and $B = 10101100$, find the eight-bit result XNOR operation.	C.O. - 02
g.	Write the truth table of the J-K flip-flop.	C.O. - 04
h.	Define Moore machine.	C.O. - 04
i.	How many states will be there in Ring & Ripple counters?	C.O. - 04
j.	Expand the following terms: (a) EPROM (b) HDL.	C.O. - 05

Q.2. Short Answer Type: Attempt any Five out of seven.**(5 x 4 = 20)**

a.	What is Half-Adder? Draw its function table and logic diagram.	C.O. - 03
b.	What is a PLD? Write about the three types of PLDs.	C.O. - 05
c.	What is a PLA programming table? Give an example.	C.O. - 05
d.	Write the design procedure of combinational circuits.	C.O. - 03
e.	What is Truth Table? Give an example.	C.O. - 02
f.	What is a Characteristic Equation? Give two examples.	C.O. - 04
g.	What is the difference between combinational and sequential circuits?	C.O. - 03

Q.3. Structured Questions: Attempt any Three out of four.**(3 x 10 = 30)**

a.	i. Define Hazard? Explain the different types of Hazards with example. ii. Realize a Full-adder using MUX.	C.O. - 04 C.O. - 03
b.	Define the following terms and give two examples for each of them: a) Minterm b) Maxterm c) Canonical form d) Standard form e) Prime Implicant	P.O. - 02
c.	Write Characteristic table and Excitation table for a) Toggle flip-flop and b) Delay or Data flip-flop.	C.O. - 04
d.	An 8 x 1 multiplexer has the data inputs I_0 through I_7 are as follows: $I_1 = I_2 = I_7 = 1$; $I_3 = I_5 = 0$; $I_0 = I_4 = I_6 = D$. Determine the Boolean function that the multiplexer implements.	C.O. - 03

Q.4. Long Answer: (Attempt any Two out of Three.)**(2 x 15 = 30)**

a.	i. Write the SIX Huntington Postulates. ii. Realize Ex-OR & NAND using minimum number of NOR gates.	C.O. - 02 C.O. - 02
b.	Simplify the following Boolean Expressions using appropriate K-MAPS. a) $F(x, y, z) = \sum M(2, 3, 4, 5)$ b) $F(w, x, y, z) = \prod M(0, 1, 4, 5, 6, 8, 9, 12, 13, 14)$	C.O. - 02
c.	i. Draw the internal logic diagram of the 3x8 line Encoder. ii. Explain Hamming code's use by considering data word = 01011011 as an example.	C.O. - 03 C.O. - 02

BCA/B. Sc. (Hons.) in Data Science Semester – I

Course Name: Fundamentals in Information Technology

Course Code: BCT111/BD112T

Time allotted: 03 Hours

Note: Read all the instructions carefully.

Max. Marks: 100

Q. 1. Attempt all questions. All carry equal marks.

(2 x 10 = 20)

QN	Questions	CO	PO
a.	What is a Network Topology? Name two types.	3	1
b.	Name two Input devices and their functions.	1	1
c.	What does ALU and CU stand for?	1	1
d.	What technology was used in the fourth generation of computers?	1	1
e.	Define high-level language.	1	1
f.	Define computer.	1	1
g.	What does MAN stand for?	3	1
h.	What is MS Word used for?	4	1,3
i.	Define ROM.	1	1
j.	Name two storage devices. Explain them.	2	1

Q. 2. Attempt any 5 questions. All carry equal marks

(5 x 4 = 20)

QN	Questions	CO	PO
a.	Compare primary memory and secondary memory.	1	1
b.	Discuss the concept of Big Data. Explain its advantages and how it helps in data analysis.	5	1
c.	Discuss the Command Line Interface (CLI). Explain its features & advantages.	3	1
d.	Explain the concept of the Peer-to-Peer model.	3	1
e.	Explain the applications of MS WORD.	4	1,3
f.	List five MS-DOS commands with a brief description of what each command does.	3	1
g.	Differentiate between Data & Information.	2	1

Q. 3. Attempt any 3 questions. All carry equal marks.

(10 x 3 = 30)

QN	Questions	CO	PO
a.	Compare input and output devices. Elaborate on their types and provide relevant examples.	1	1
b.	Convert the following numbers decimal into binary: (i) 17 (ii) 160 (iii) 200 (iv) 127 (v) 1024	2	1
c.	What are different Network Topologies? Explain.	3	1
d.	What are the various types of computer networks? Explain each with examples and discuss their advantages and limitations.	3	1

Q. 4. Attempt any 2 questions. All carry equal marks.

(15 x 2 = 30)

QN	Questions	CO	PO
a.	(i) Explain different types of Networking Devices. (ii) What is MODEM? Discuss its working.	3	1
b.	Classify computers based on their size. Explain the different categories with examples and their respective characteristics.	1	1
c.	Explain the concept of Cloud Computing and its service models.	5	1

END SEMESTER EXAMINATION, DECEMBER - 2024
BCA/B. Sc. (Hons.) in Data Science Semester – I

Course Name: English Language Skill/English Communication

Course Code: BCT115/BD115T

Time allotted: 03 Hours

Max. Marks: 100

Note: Read all the instructions carefully.

Q.1 VERY SHORT ANSWER QUESTIONS – Attempt All.

(2x10 = 20 Marks)

Do as directed type questions.

- | | | |
|----|---|-----|
| a. | Change the sentence from present simple to future continuous tense:
"He reads a book every weekend." | CO2 |
| b. | Write the antonyms of given words:
1. Offensive 2. Pertinent | CO1 |
| c. | Break and count syllable in below given words:
1. Apple 2. Synchronic | CO2 |
| d. | Convert the given sentence into the passive voice:
"She will teach the class tomorrow." | CO2 |
| e. | Write the synonyms of given words:
1. Prominent 2. Stubborn | CO2 |
| f. | Convert the sentence from present perfect to future perfect:
"We have completed the project." | CO1 |
| g. | What is Rise-fall intonation? | CO1 |
| h. | Choose appropriate preposition.
The movie starts _____ 7:30 PM. (by/at) | CO2 |
| i. | Define intonation process? | CO1 |
| j. | Recall language learning and language acquisition. | CO1 |

Q.2 SHORT ANSWER QUESTIONS – Attempt any Five.

(4x5 = 20 Marks)

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|----|---|-----|
| a. | Identify one barrier to effective listening and suggest a solution for overcoming it. | CO3 |
| b. | How can reflective response contribute to better understanding in communication? | CO3 |
| c. | Analyze the process of listening, breaking down its stages and explaining the significance of each stage. | CO3 |
| d. | What do you understand by information overload? Explain with an example. | CO3 |
| e. | Define the importance of reading and its role in education. | CO4 |
| f. | List two strategies for developing skimming skills. | CO4 |
| g. | Evaluate the different types of reading and their respective applications in various contexts. | CO4 |

Q.3 STRUCTURED QUESTIONS – Attempt any Three.

(3x10 = 30 Marks)

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|----|--|-----|
| a. | Analyze the strategies for improving reading skills, considering both short-term and long-term benefits. | CO4 |
| b. | Evaluate the impact of reflective responses in resolving misunderstandings during communication. | CO4 |
| c. | Briefly define intonation and its role in spoken language. | CO5 |
| d. | Analyze the effectiveness of evaluation in listening comprehension. | CO5 |

Q.4 Case Analysis/ Situation Based QUESTIONS – Attempt any Two.

(2x15 = 30 Marks)

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|----|---|-----|
| a. | Formulate a detailed guide on formal letter writing. Include essential elements, formatting rules, and the appropriate language to be used in different formal correspondence situations. | CO5 |
| b. | Create a narrative paragraph telling a short story or recounting a personal experience. | CO6 |
| c. | Imagine you recently purchased a product or service that did not meet your expectations. Write a formal letter to the company or service provider expressing your dissatisfaction, outlining the issues you encountered, and suggesting possible solutions. | CO6 |

END SEMESTER EXAMINATION, DECEMBER - 2024

B.Sc. (Hons.) in DS Semester - I

Course Name: Human Values & Professional Ethics

Course code: BD116T

Time allotted: 03 Hours

Note: Read all the instructions carefully.

Max. Marks: 100

Q.1. Objectives Type

(Very short/ Short Answer, MCQ, One-liners, Fill in the Blank, True/ False) Attempt all. (10 X 2=20)

a.	Which value encourages treating others with kindness and understanding? A) Discipline B) Honesty C) Empathy D) Courage	PO- 6,8,12 CO- 1
b.	What term refers to the process of understanding and being considerate of the feelings of others? A) Honesty B) Self-exploration C) Empathy D) Courage	PO- 6,8,12 CO-1
c.	Which value involves being truthful and sincere in one's actions and interactions? A) Love B) Respect C) Honesty D) Discipline	PO- 6,8,12 CO-2
d.	In the context of Value Education, what does "self-confidence" primarily refer to? A) Belief in one's abilities B) Isolation from others C) Ignoring values D) Academic excellence	PO- 6,8,12 CO-1
e.	How does globalization challenge traditional Indian values and ethics? A) It has no impact on traditional values B) It reinforces and preserves traditional values C) It introduces new cultural influences and norms D) It strengthens local traditions and customs	PO- 6,8,12 CO- 2
f.	What do Yamas represent in Indian ethics and values? A) Moral principles and restraints B) Sacred texts C) Ritualistic practices D) Political doctrines	PO- 6,8,12 CO- 2
g.	What is the role of intellectual discourse in addressing the value crisis at an intellectual level? A) Fanning divisive ideologies B) Promoting critical thinking and cultural understanding C) Advancing political agendas D) Suppressing free speech	PO- 6,8,12 CO-2
h.	Which of the following is NOT a characteristic of a profession? A) Specialized knowledge B) Ethical standards C) Lack of formal education D) Self-regulation	PO- 6,8,12 CO- 4
i.	In the context of professional ethics, what does "conflict of interest" refer to? A) A situation where two professionals have a disagreement B) A situation where an individual's personal interests may compromise their professional duties C) A situation where professionals work together harmoniously D) A situation where professional advice is not needed	PO- 6,8,12 CO- 4
j.	Which of the following is a potential consequence of violating professional ethics? A) Financial reward B) Career advancement C) Legal consequences and damage to one's professional reputation D) Personal happiness	PO- 6,8,12 CO- 4

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Q.2. Short notes / Short Answer Type (Attempt any five out of Seven)

(5 X 4=20)

a.	Describe the role of "Discipline" in shaping human values.	PO-6,8,12 CO- 1
b.	How is "Honesty" emphasized in the process of value education?	PO-6,8,12 CO- 1
c.	What is the relationship between happiness and the Indian concept of a good life?	PO-6,8,12 CO- 3
d.	How does globalization challenge traditional Indian values and ethics?	PO-6,8,12 CO- 2
e.	What are some physical needs essential for human prosperity and well-being?	PO-6,8,12 CO- 3
f.	What is the importance of understanding harmony within oneself?	PO-6,8,12 CO- 3
g.	Define the meaning of "family" in your own words.	PO-6,8,12 CO-3

Q.3. Structured Question (Attempt any three out of four)

(3 X 10=30)

a.	a) How do people's values shift in modern India? b) What are common challenges to personal values? c) Strategies to overcome personal value crises?	PO-6,8,12 CO- 2
b.	a) How does the intellectual scene add to India's value crisis? b) Explain conflicts between intellect and tradition? c) Role of education in resolving intellectual value crisis?	PO-6,8,12 CO- 2
c.	a) What are the components of comprehensive human goals? b) How do personal values and relationships aid goal achievement? c) Discuss the interconnectedness of physical, emotional, and social well-being in pursuing human goals.	PO-6,8,12 CO- 3
d.	a) Explain the role of food in insuring harmony with the body. b) Describe the process of ingestion, digestion, and excretion in relation to nurturing the body. c) How does improper food consumption negatively impact the body?	PO-6,8,12 CO- 3

Q.4. Long Answer / Essay type (Attempt any two out of three)

(2 X 15=30)

a.	a) How can an individual recognize and address a value crisis in their own life? b) What role does self-exploration play in overcoming value crises at the individual level?	PO-6,8,12 CO- 1
b.	a) Explain the importance of harmony within a family structure. b) How can individuals contribute to maintaining harmony in their families?	PO-6,8,12 CO- 3
c.	a) How does a code of professional ethics regulate behaviour, particularly in the field of technology, and address ethical concerns in the digital age?	PO-6,8,12 CO- 4

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END SEMESTER EXAMINATION, DECEMBER - 2024**B.Sc. (Hons.) in DS Semester - I****Course Name: Calculus****Course code: BD111T****Time allotted: 03 Hours****Max. Marks: 100****Note: Read all the instructions carefully.****Q.1. Objectives Type****(10 X 2=20)****(Very short/ Short Answer, MCQ, One-liners, Fill in the Blank, True/ False) Attempt all.**

QN	Questions	CO	PO
a.	What does it mean for a function to be continuous?	1	1
b.	When is a function of two variables said to be homogeneous?	2	1
c.	What is the second derivative test for maxima or minima of a function of one variable?	2	1
d.	What are the steps in curve tracing?	2	1
e.	How the area under a surface is calculated using double integrals?	4	2
f.	Give an example of changing the order of integration for a double integral.	4	2
g.	Define a homogeneous differential equation.	5	1
h.	What is an exact differential equation?	5	1
i.	Write the geometrical interpretation of triple integration.	4	2
j.	Illustrate by an example the trigonometric substitution in integration.	3	2

Q.2. Short notes / Short Answer Type (Attempt any five out of Seven)**(5 X 4=20)**

QN	Questions	CO	PO
a.	Evaluate the limit $\lim_{x \rightarrow 0} \left[x - x^2 \ln \left(1 + \frac{1}{x} \right) \right]$.	1	2
b.	Evaluate by using integration by parts $\int \frac{\sin^{-1} x}{x^2} dx$.	3	2
c.	Evaluate $\int \frac{1}{(e^x - 1)} dx$.	3	2
d.	Change the integral from Cartesian to polar $\int_{-2}^2 \int_0^{\sqrt{4-x^2}} f(x, y) dy dx$ (don't evaluate).	4	2
e.	Change the order of integration $\int_0^3 \int_0^x f(x, y) dy dx$ (don't evaluate).	4	2
f.	Solve $(2xy + x^2) \frac{dy}{dx} = 3y^2 + 2xy$.	5	2
g.	Solve $(1 + x^2) dy - xy dx = 0$.	5	2

Q.3. Structured Question (Attempt any three out of four)

(3 X 10=30)

QN	Questions	CO	PO
a.	Find the maximum and minimum values of $f(x) = x^3 - 6x^2 + 9x + 1$.	2	2
b.	Evaluate $\int \frac{(x^2+1)}{(x+1)^2} e^x dx$.	3	2
c.	Using the transformation $u = x - y, v = x + y$, prove that $\iint_R \cos \frac{x-y}{x+y} dx dy = \frac{1}{2} \sin 1$, where R is bounded by $x = 0, y = 0, x + y = 1$.	4	2
d.	Evaluate $\lim_{x \rightarrow 0} \frac{\sin x - x + \frac{1}{6}x}{x^5}$.	1	2

Q.4. Long Answer / Essay type (Attempt any two out of three)

(2 X 15=30)

QN	Questions	CO	PO
a.	If $y = e^{m \sin^{-1} x}$ then show that $(1-x^2)y_{n+2} - (2n+1)xy_{n+1} - (n^2+m^2)y_n = 0$.	1	2
b.	Find the volume under a surface: $z = x^2 + y^2$ over the region $x^2 + y^2 \leq 1$.	4	2
c.	Solve the differential equation $\frac{dy}{dx} + \frac{y}{x} \log y = \frac{y}{x^2} (\log y)^2$.	5	2
