

F.Y.B.Sc.(I.T.) – Semester I
BASICS OF INDIAN KNOWLEDGE SYSTEM
(Time: 60 min)

Total Marks: 30

Instructions:

1. Q.1 is Compulsory.
2. Attempt **any 2** from Q. 2 to Q.4.
3. Figures to the right indicate full marks.

1. Read the passage and answer the following questions given below: -

10

PASSAGE: -

The introduction of metals, especially iron, marked an important phase in the history of deforestation in India. In the early Vedic period, the Aryans probably did not know iron, using the word *ayas* for metals in general. Archaeological findings suggest that iron appeared in India between 1000 and 800 B.C., and its tools made the cutting of large trees much easier. This innovation allowed agricultural groups to settle in forested regions, particularly as the Aryans moved eastward into the Gangetic plains.

When the Aryans arrived in north-west India, described in the Rigveda as *Sapta Sindhas* or the land of seven rivers, they began settling around 1400 B.C., first in Punjab and later across wider regions. Being both pastoral and agricultural, they required land for crops and grazing. To meet these needs, forests were cleared using fire, stone axes, and eventually iron implements. The burning of the *Khandava* forest in the *Mahabharata* symbolically represents such destruction through fire and deforestation.

During the early Vedic phase, forests were not destroyed for city building, as India had no major urban centers after the fall of the Harappan culture. Between this decline and the rise of the “second urbanization” around the 6th century B.C., historians note a thousand-year “Dark Age.” Throughout this period, the Aryans lived amidst forests, mainly along riverbanks, clearing areas for villages and farmlands. Wood was central to their lives, used for cottages, carts, chariots, and fuel. Clearing of forest tracts also became necessary for creating roads and pathways to connect settlements.

Thus, Aryan expansion steadily accelerated deforestation, driven by agriculture, animal rearing, and communication needs. From ancient times, human survival and progress in India relied heavily on forest exploitation, laying the roots of deforestation deep in its early history.

Questions:-

1. What role did iron play in the history of deforestation in India?
2. How did the Aryans clear forests before the use of iron implements?
3. What does the burning of the *Khandava* forest in the *Mahabharata* symbolize?
4. Why were forests cleared during the early Vedic phase?
5. How was wood important in the lives of the Aryans?

2. Answer the following:

- a. Explain wastewater management practices in Ancient India. **5**
- b. Describe the historical perspective of ancient tourism in India. **5**

3. Answer the following:

- a. Explain the significance of town planning in Ancient India with suitable examples. **5**
- b. Explain how Ancient Indian Stone masonry techniques influence other civilizations? **5**

4. Answer the following:

- a. Explain the features of town planning during the Indus Valley Civilization. **5**
- b. Discuss the role of early trade routes of the world in promoting tourism and cultural exchanges in **5**

F.Y. B. Sc. (I.T.) – Semester I (NEP)
SUBJECT: NUMERICAL ANALYSIS

(Time: 1 hour)

Total Marks: 30

- N. B.: (1) All questions are compulsory.
 (2) Make suitable assumptions wherever necessary and state the assumptions made.
 (3) Answers to the same question must be written together.
 (4) Numbers to the right indicate marks.
 (5) Draw neat labeled diagrams wherever necessary.
 (6) Use of Non-programmable calculators is allowed.

1. Attempt any three of the following:

15

- a. Find the truncation error in the series of exponential function given as

$$e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots + \frac{x^n}{n!}$$
 for the computation of first 5 terms in the expansion at $x = 1.3$
- b. Find the real root of non-linear equation $3x - \cos x - 1 = 0$ by Newton-Raphson method. (Let $x_0 = 0.65$)
- c. Explain the terms: Accuracy & Precision. Support your answer with suitable diagram.
- d. Find approximate root of non-linear equation $x^4 - 2x - 5 = 0$ by Regula-False Method up to 4 stages.
- e. Solve the following system of linear equations by Gauss-Seidel method
 $28x + 4y - z = 32$, $2x + 17y + 4z = 35$, $x + 3y + 10z = 24$
- f. Solve the following system of linear equations by Gauss-Jordan method
 $x + y + z = 3$, $2x + 3y - 2z = 3$, $3x + 4y + z = 8$

2. Attempt any three of the following:

15

- a. Evaluate: $\int_2^8 \frac{x}{3x^2+1} dx$ dividing the interval into 6 equal parts using appropriate rule.
- b. Apply appropriate interpolation formula to estimate y at $x = 44$
- | | | | | |
|-----|--------|--------|--------|--------|
| x | 20 | 30 | 40 | 50 |
| y | 4.4721 | 5.4772 | 6.3246 | 7.0711 |
- c. Evaluate: $\int_{0.2}^{1.6} (\log x + e^x) dx$ dividing the interval into 7 equal parts using appropriate rule.
- d. Fit second degree curve of the form $y = a + bx + cx^2$ passing through given set of values & hence find y at $x = 2$
- | | | | | | |
|-----|----|----|---|-----|----|
| x | 6 | 4 | 1 | 7 | 3 |
| y | 87 | 43 | 7 | 115 | 27 |
- e. From the table given below estimate the value of y at $x = 2$ using appropriate interpolation formula.
- | | | | | |
|-----|---|--------|--------|--------|
| x | 1 | 3 | 4 | 7 |
| y | 1 | 1.4422 | 1.5874 | 1.9129 |
- f. Fit an equation of 3-D plane of the form $x = a + by + cz$ passing through given set of values

x	7.5	22.4	16.2	7.3
y	1	8	5	3
z	4	9	7	2

F.Y.B.Sc.(I.T.) – Semester I
Principles of Digital Electronics

(Time: 1 hour)

Total Marks: 30

- N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt any three of the following:

15

- a. Explain Decimal to Binary conversion with the help of suitable example.
- b. Solve the following:
i) $(2338)_{10} = (X)_{16}$
ii) $(1\ 1\ 0\ 0\ 1\ 1\ 0\ 1)_2 = (X)_{10}$
iii) $(1\ 0\ 1\ 1\ 1\ 0\ 0.\ 0\ 1)_2 = (X)_8$
- c. What is a logic gate? Discuss Basic and Universal gates.
- d. Reduce the following logical equations using Boolean Algebra:
i) $(A+B).(B+D).(A+C).(C+D)$
ii) $(X + Z). (\bar{X} + Y + Z)$
- e. I) Solve the following:
i) $(1\ 1\ 1\ 0\ 1)_2 + (0\ 0\ 1\ 1\ 1)_2$
ii) $(1\ 1\ 1\ 0)_2 - (0\ 1\ 1\ 1)_2$
II) Calculate 2's complement of $(23)_{10}$

2. Attempt any three of the following:

15

- a. What are the different types of logical equations? Discuss in detail.
- b. Write a short note on a Half-adder circuit.
- c. Simplify the following using K-map :
i) $Y = f(A, B, C, D) = \sum m (1, 3, 4, 5, 7, 9, 11, 13, 15)$
ii) $Y = f(A, B, C) = \prod M (2, 3, 4, 5, 6, 7)$
- d. Explain in detail working of SR flip flop.
- e. Differentiate between Multiplexer and De-Multiplexer circuit.

17/10/25

F.Y.B.Com.(Bus. Adm.) – Semester I
BASICS OF INDIAN KNOWLEDGE SYSTEM

(Time: 60 min)

Total Marks: 30

Instructions:

17/10/2025

1. Q.1 is Compulsory.
2. Attempt **any 2** from Q. 2 to Q.4.
3. Figures to the right indicate full marks.

1. Read the passage and answer the following questions given below: -

10

PASSAGE: -

The introduction of metals, especially iron, marked an important phase in the history of deforestation in India. In the early Vedic period, the Aryans probably did not know iron, using the word *ayas* for metals in general. Archaeological findings suggest that iron appeared in India between 1000 and 800 B.C., and its tools made the cutting of large trees much easier. This innovation allowed agricultural groups to settle in forested regions, particularly as the Aryans moved eastward into the Gangetic plains.

When the Aryans arrived in north-west India, described in the Rigveda as *Sapta Sindhas* or the land of seven rivers, they began settling around 1400 B.C., first in Punjab and later across wider regions. Being both pastoral and agricultural, they required land for crops and grazing. To meet these needs, forests were cleared using fire, stone axes, and eventually iron implements. The burning of the Khandava forest in the Mahabharata symbolically represents such destruction through fire and deforestation.

During the early Vedic phase, forests were not destroyed for city building, as India had no major urban centers after the fall of the Harappan culture. Between this decline and the rise of the “second urbanization” around the 6th century B.C., historians note a thousand-year “Dark Age.” Throughout this period, the Aryans lived amidst forests, mainly along riverbanks, clearing areas for villages and farmlands. Wood was central to their lives, used for cottages, carts, chariots, and fuel. Clearing of forest tracts also became necessary for creating roads and pathways to connect settlements.

Thus, Aryan expansion steadily accelerated deforestation, driven by agriculture, animal rearing, and communication needs. From ancient times, human survival and progress in India relied heavily on forest exploitation, laying the roots of deforestation deep in its early history.

Questions:-

1. What role did iron play in the history of deforestation in India?
2. How did the Aryans clear forests before the use of iron implements?
3. What does the burning of the Khandava forest in the Mahabharata symbolize?
4. Why were forests cleared during the early Vedic phase?
5. How was wood important in the lives of the Aryans?

2. Answer the following:

- a. Explain wastewater management practices in Ancient India. 5
- b. Describe the historical perspective of ancient tourism in India. 5

3. Answer the following:

- a. Explain the significance of town planning in Ancient India with suitable examples. 5
- b. Explain how Ancient Indian Stone masonry techniques influence other civilizations? 5

4. Answer the following:

- a. Explain the features of town planning during the Indus Valley Civilization. 5
- b. Discuss the role of early trade routes of the world in promoting tourism and cultural exchanges in Ancient India. 5

F. Y. B. Sc. (I. T.) – Semester I
FUNDAMENTALS OF PROGRAMMING

(Time: 1 hour)

Total Marks: 30

- N. B.:
- (1) All questions are compulsory.
 - (2) Make suitable assumptions wherever necessary and state the assumptions made.
 - (3) Answers to the same question must be written together.
 - (4) Numbers to the right indicate marks.
 - (5) Draw neat labeled diagrams wherever necessary.
 - (6) Use of Non-programmable calculators is allowed.

15

1. Attempt any three of the following:

- a. Explain two-dimensional array with example.
- b. What are constants? Explain the types of constants in C with examples.
- c. Write a C program to print area of square using function
- d. Explain arithmetic operators in C with suitable examples.
- e. List and explain any four basic data types in C.

15

2. Attempt any three of the following:

- a. Define a structure. How are structure members accessed? Explain with example.
- b. Write a program to check whether a string is a palindrome.
- c. Write a short note on basic file operations: opening, reading, writing, and closing a file.
- d. Explain different types of files.
- e. Write a C program to print student details like roll no, first name and marks using union.

(Time: 1 hour)

Total Marks: 30

- N. B.: (1) All questions are compulsory.
(2) Make suitable assumptions wherever necessary and state the assumptions made.
(3) Answers to the same question must be written together.
(4) Numbers to the right indicate marks.
(5) Draw neat labeled diagrams wherever necessary.
(6) Use of Non-programmable calculators is allowed.

15

1. Attempt any three of the following:

- a. Write a note on Relational Data Model.
- b. What is a Database? Explain the purpose of Database.
- c. Explain Entity Relationship Diagram Notations with example.
- d. Explain First Normal Form with example.
- e. Explain primary key, foreign key and candidate key with example.

15

2. Attempt any three of the following:

- a. Discuss IN, BETWEEN and LIKE Clause with example.
- b. Discuss Left outer join and Right outer join with syntax and example.
- c. What is a view? Explain Horizontal View, Vertical view and read only view with example.
- d. Write a note on aggregate functions.
- e. Write appropriate query for the table Student (sid, sname, grade, marks)
 - i. Display all records from Student table.
 - ii. Display only the names and grades of students who scored more than 80 marks.
 - iii. Increase the marks of all Students in grade 'A' by 5.
 - iv. Delete the record of the student whose sid is 103.
 - v. Remove all records from the Student table but keep the table structure intact.

F. Y. B. Sc. (I.T.) – Semester I
PRINCIPLES OF MANAGEMENT

(Time: 1 hour)

Total Marks: 30

11/10/2025

- N. B.: (1) All questions are compulsory.
(2) Make suitable assumptions wherever necessary and state the assumptions made.
(3) Answers to the same question must be written together.
(4) Numbers to the right indicate marks.
(5) Draw neat, labeled diagrams wherever necessary.

15

1. Attempt any three of the following:

- a. Explain the 6M's of management.
- b. Enumerate the skills required of a manager.
- c. Distinguish between Traditional v/s Modern management.
- d. Explain the concept of green management.
- e. Explain any 5 out of 14 Principles of management.
- f. What are the disadvantages of controlling?

15

2. Attempt any three of the following:

- a. Explain the advantages of planning.
- b. Explain the techniques of decision making.
- c. Explain the disadvantages of organizing.
- d. What are the factors affecting span of control?
- e. Enumerate the barriers in delegation.
- f. What is the importance of coordinating function?

(Time: 1 hour)

Total Marks: 30

15 | 10 | 2025

- N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

15

1. **Attempt any three of the following:**
 - a. What are the problems addressed while applying green computing?
 - b. What effects on climate change are being seen due to the carbon footprint?
 - c. Write down the typical functions that green IT-based applications perform.
 - d. Write a short note on REACh.
 - e. Write a short note on non-regulatory Government initiatives.

2. **Attempt any three of the following:**
 - a. How can virtualization reduce power consumption?
 - b. Write a short note on any two low-power computers.
 - c. Explain MAID and RAID.
 - d. What things are necessary for evaluating suppliers for their level of environmental responsibility?
 - e. Explain the planning process in outsourcing.

15

F. Y. B. Sc. (I.T.) – Semester I
Effective Communication Skills I

(Time: 1 hour)

Total Marks: 30

Date 13/10/2025

- N. B.: (1) All questions are compulsory.
(2) Make suitable assumptions wherever necessary and state the assumptions made.
(3) Answers to the same question must be written together.
(4) Numbers to the right indicate marks.
(5) Draw neat labeled diagrams wherever necessary.

15

1. Attempt any three of the following:
 - a. Explain importance of communication in human life.
 - b. What are the benefits of Upward Communication?
 - c. Explain seven Cs of communication.
 - d. Elaborate preparation process of interview for interviewee.
 - e. Explain important factors involved in Body Language.

15

2. Attempt any three of the following:
 - a. What are the principles of Effective Presentation?
 - b. Write a short note on Organizational Chart with diagram.
 - c. Explain Telephone Etiquettes.
 - d. What are the important key factors in Debate Skill?
 - e. Explain Cultural Barriers with appropriate examples.