



A unit of Gopsai Avinandan Sangha

An ISO 9007:2008 Certified Institution

# INSTITUTE OF SCIENCE & TECHNOLOGY

Approved by AICTE, Recognised by Govt. of West Bengal & Affiliated to MAKAUT, WB, WBSCTVESD and NCVT

## ASSIGNMENT QUESTIONS

### BHM-2ND SEM

#### SUB: MEDICAL TERMINOLOGY

#### PAPER CODE: BBA(HM)-201

1. Describe the blood circulation in the heart.
2. Define hormone. Describe briefly about the different hormones secreted from pituitary gland and their functions.
3. Different between a malignant and a benign tumor. Explain the of the term  $T_1$   $N_2$   $M_0$  in Oncology ? What are the types of cancer treatment available today?
4. What are the components of cardiovascular system? Describe the process of blood circulation. What are the functions of blood?
5. What is neuron? Draw and describe the different parts of a neuron..
6. What are the different types of muscle? Mention their locations into the body and their functions. What are the different types of joints present in our body? Explain their locations.

#### SUB: BIO STATISTICS

#### PAPER CODE: BBA-HM-203

1. Suppose that 5% males and 0.25% of females have grey hair. A grey haired person is selected at random. What is the probability of this person being male? Assume that there are equal number of males and females.
2. If A & B are two independent events, then show that  $\bar{A}$  &  $\bar{B}$  are also independent events.
3. The arithmetic mean calculated from the following frequency distributions is known to be 67.42 inches. Find the value of unknown frequency  $f_3$ .

HEIGHT	60-62	63-65	66-68	69-71	72-74
FREQUENCY	15	54	$f_3$	81	24

4. Calculate median and mode of the following frequency distribution:

HEIGHT	56-60	61-65	66-70	71-75	76-80
NO OF PERSONS	7	25	43	28	7

5. Calculate the standard deviation of the following distribution.

CLASS INTERVAL	0-9	10-19	20-29	30-39	40-49	50-59
FREQUENCY	12	18	30	25	15	10

## **SUB: ENVIRONMENTAL SCIENCE AND SUSTAINABLE DEVELOPMENT**

**PAPER CODE: BBA(HM)-204**

1. “Wood is a major renewable resource”-----Elucidate.
2. Sanitary landfill method for waste disposal.
3. Define ecology. Explain the ecological balance and its consequences of changes. Describe domestic waste water treatment with proper flow diagram.
4. Define biomedical waste. Describe different methods of management of biomedical wastes. Describe in brief the different types of biomedical waste categories.
5. Write a short note on Greenhouse Effect.

## **BBA-2ND SEM**

**SUB: OPERATIONS MANAGEMENT**

**PAPER CODE: BBA-201**

1. Briefly describe the Responsibilities of Production Manager.
2. What are the basic differences between Manufacturing and Service Operations?
3. Mention some Characteristics of Manufacturing Systems.
4. What are the Needs for a Good Plant Location?
5. What are basic differences between Process Layout and Product Layout.

**SUB: ORGANIZATIONAL BEHAVIOUR**

**PAPER CODE: BBA-202**

- 1) Explain the importance of the study of Organizational Behavior.
- 2) Explain the different types of Personality.
- 3) What are the factors influencing attitude formation.
- 4) What are the different types of Groups?
- 5) Discuss the contribution of other disciplines to Organizational Behavior.
- 6) Write a short -notes on Learning Process.

**SUB: VALUES AND ETHICS**

**PAPER CODE:- BBA-203 ( GE1B-07 )**

1. Discuss the importance of family and peer groups as the agencies of socialization.
2. State the characteristics of Juvenile Delinquency in India.
3. What do you mean by society? Briefly mention the characteristics of a society. What are the types of society? What are the features of Industrial Society?
4. Social implications of age sex in India.
5. Briefly describe the types of values.
6. What do you mean by Corporate Responsibility. Elucidate your answer with a case study.

## **SUB: ENVIRONMENTAL SCIENCE AND SUSTAINABLE DEVELOPMENT**

**PAPER CODE:- BBA-204**

1. "Wood is a major renewable resource"-----Elucidate.
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5. Write a short note on Greenhouse Effect.

## **BCA- 2ND SEM**

### **SUB: DISCRETE STRUCTURE**

**PAPER CODE: BCAC201**

1. Prove that : For any connected planar graph  $v$  vertices,  $e$  edges and  $f$  faces, we have  $v-e+f = 2$ . result.
2. Prove that – Any tree with at least two vertices has at least two vertices of degree one.
3. PROVE THAT:  $B \Delta C = (B-C) \cup (C-B) = (B \cap C) \cup (B \cap C)$ .
4. In a group of 400 people, 250 can speak Hindi and 200 can speak English. Then find how many can speak both Hindi & English using inclusion & exclusion set theorem.
5. 20 teachers of a school either teach mathematics or physics. 12 of them teach Mathematics while 4 teach both the subjects. What is the numbers of teacher teaching Physics only using inclusion & exclusion set theorem.

### **SUB: COMPUTER ARCHITECTURE**

**PAPER CODE: BCAC202**

1. What is computer architecture? What are the three categories of computer architecture?
2. What is pipelining? What are the different hazards?
3. What are flip-flops? Describe about different types of flip-flops with diagram.
4. State the difference between Computer Architecture and Computer Organization?
5. What is the difference between Software and Hardware interrupts?
6. Describe Multiplexing and Demultiplexing with diagram.

### **SUB: ENVIRONMENTAL SCIENCE**

**PAPER CODE: BCAA201**

1. "Wood is a major renewable resource"-----Elucidate.
2. Sanitary landfill method for waste disposal.
3. Define ecology. Explain the ecological balance and its consequences of changes. Describe domestic waste water treatment with proper flow diagram.
4. Define biomedical waste. Describe different methods of management of biomedical wastes. Describe in brief the different types of biomedical waste categories.
5. Write a short note on Greenhouse Effect.

## **SUB: CODE IN WITH JAVA**

### **PAPER CODE: GE-4B-11**

1. Describe features of Object-Oriented Programming.
2. Explain with example various Loops.
3. Explain with example class and object.
4. What is overloading Methods? Give an example.
5. What is overloading Constructors? Give an example.

## **SUB: COMPUTER ARCHITECTURE LAB**

### **PAPER CODE: BCAC292**

1. Write a Shell program to check the given number is even or odd.
2. Write a Shell program to check the given year is leap year or not.
3. Write a Shell program to find the factorial of a number.
4. Write a Shell program to swap the two integers.
5. Write a C program for implementation of FCFS and SJF scheduling algorithms.
6. Write a C program for implementation of Round Robin scheduling algorithms.

## **MCA- 2ND SEM**

### **SUB: DATA STRUCTURES WITH PYTHON**

#### **PAPER CODE: MCAN 201**

1. What is Data Structure? What are the characteristic of data structure? Explain the classification of Data structure.
2. What is Stack? Write the algorithm for PUSH and POP operation in Stack.
3. What is Queue? Write the algorithm for insertion and Deletion operation in Queue.
4. What is binary Search? Write the algorithm for Binary Search.
5. What is Linked list? Write the algorithm to add an element to insert at front of linked list.

### **SUB: OPERATING SYSTEM**

#### **PAPER CODE: MCAN 202**

1. What is a process ? State the process life cycle with proper diagram? What is Context Switching? What is Zombie process?
2. What is a Thread? What are the differences between process and thread? What is Multi threading? Describe about Different types of Multithreading.
3. What is Synchronization? What is semaphore? Explain three classical problem of Synchronization.
4. What is Paging? What is Thrashing? What is Demand paging? What is Fragmentation? What is Belady's Anomaly.
5. Solve the problem with three page replacement policy in three frames structure.  
[7,0,1,2,0,3,0,4,2,3,3,2,1,2,0,1,7,0,1]
6. Define Deadlock. Explain the Deadlock necessary condition. Define critical Section.

## **SUB: OBJECT ORIENTED PROGRAMMING WITH JAVA**

### **PAPER CODE: MCAN 203**

1. Describe features of Object-Oriented Programming.
2. Explain with example various Loops.
3. Explain with example class and object.
4. What is overloading Methods? Give an example.
5. What is overloading Constructors? Give an example.

## **SUB: NETWORKING**

### **PAPER CODE: MCAN 204**

1. What is Computer Network? Explain different components of computer.
2. What is topology? Explain different types of Topology with proper diagram.
3. Explain Circuit switching, Packet switching and Message Switching.
4. What are the layers in OSI Reference Models? Describe each layer briefly.
5. What are the layers in TCP/IP Models? Describe each layer briefly.

## **SUB: COMPUTER GRAPHICS**

### **PAPER CODE: MCAN-E205B**

Explain with suitable example :

1. DDA Line Drawing Algorithm
2. Bresenham's Line Drawing Algorithm
3. Mid-Point Circle Drawing Algorithm
4. Bresenham's Circle Drawing Algorithm
5. Mid-Point Ellipse Algorithm

## **SUB: DATA STRUCTURE WITH PYTHON LAB**

### **PAPER CODE: MCAN 291**

1. Write a C Program to search an element using Binary Search.
2. Write a C Program to program to PUSH and POP an element in stack.
3. Write a C program to Check whether a year is leap year or not.

## **SUB: OPERATING SYSTEM LAB**

### **PAPER CODE: MCAN 292**

1. Write a Shell program to check the given number is even or odd.
2. Write a Shell program to check the given year is leap year or not.
3. Write a Shell program to find the factorial of a number.
4. Write a Shell program to swap the two integers.
5. Write a C program for implementation of FCFS and SJF scheduling algorithms.
6. Write a C program for implementation of Round Robin scheduling algorithms.

## **SUB: OBJECT ORIENTED PROGRAMMING LAB USING JAVA**

**PAPER CODE: MCAN 293**

1. Java Program to check if a number is Positive or Negative
2. Java Program to check Armstrong number
3. Java Program to Calculate Area and Circumference of Circle
4. Java Program to display Fibonacci series using loops
5. Java Program to find Factorial using loops

## **MHA- 2ND SEM**

**SUB: HOSPITAL SUPPORT SERVICES**

**PAPER CODE: MHA-201**

1. Write a short note on patient safety.
2. Write a note on type of hospital diet.
3. Write a short note on Drug and Cosmetic act.
4. Discuss the problem areas and problem solution for house- keeping department.
5. State the role and function of hospital pharmacy.
6. List the various functions of Mortuary.

**SUB: MATERIAL MANAGEMENT**

**PAPER CODE: MHA-202**

1. What do you mean by centralized and decentralized systems of purchasing?
2. State the importance of EOQ in inventory control. Mention the limitation of EOQ concept.
3. Define materials planning. How it is related with “Bill of Materials”?
4. Write a short note on ABC analysis
5. Write down the functions of storekeeping.

**SUB: QUALITY MANAGEMENT**

**PAPER CODE: MHAN-203**

1. With examples substantiate how quality can be ensured in health care.
2. Describe the accreditation process of NABH for hospitals.
3. What do you mean by Total Quality Management? What are the dimensions of quality? What are the obstacles in implementing TQM in real life?
4. Define quality. What are the objectives of quality management in hospitals? Describe the elements of a comprehensive quality management program.
5. Cause-and-Effect Analysis

**SUB: HOSPITAL PLANNING**  
**PAPER CODE: MHAN-204**

1. Discuss about determination of building site.
2. Write a short note on regulation of land requirements.
3. Quality assurance in health care.
4. State the classification of various types of Hospitals.
5. Write a short note on Network analysis
6. Describe in sequential steps the stages of hospital planning

**SUB: HEALTH MANAGEMENT INFORMATION SYSTEM**  
**PAPER CODE: MHAN-205**

1. What is HIS? Describe brief about physical facilities and operational planning of HIS Department. How can HIS be used in ia evaluating quality of care?
2. What is the Medical unit? Describe the various methods of health care.
3. Discuss the Advanced computer applications in the field of Health care.
4. What are the different types of records and reports generated by MRD? Explain their uses. Why do you think hospital statistics are essential?
5. Explain the qualification and job responsibilities of medical record officer.
6. What is hospital information system? What are the basic management cycles of a hospital? Discuss the different types of hospital management system in a hospital.
7. What is Census? Describe the components of a comprehensive health information system

**SUB: RESEARCH METHODOLOGY AND QUANTITATIVE METHODS**  
**PAPER CODE: MHAN-206**

1. Suppose that 5% males and 0.25% of females have grey hair. A grey haired person is selected at random. What is the probability of this person being male? Assume that there are equal number of males and females.
2. If A & B are two independent events, then show that  $\bar{A}$  &  $\bar{B}$  are also independent events.
3. The arithmetic mean calculated from the following frequency distributions is known to be 67.42 inches. Find the value of unknown frequency f3.

<b>HEIGHT</b>	60-62	63-65	66-68	69-71	72-74
<b>FREQUENCY</b>	15	54	f3	81	24

4. Calculate median and mode of the following frequency distribution:

<b>HEIGHT</b>	56-60	61-65	66-70	71-75	76-80
<b>NO OF PERSONS</b>	7	25	43	28	7

5. Calculate the standard deviation of the following distribution.

<b>CLASS INTERVAL</b>	0-9	10-19	20-29	30-39	40-49	50-59
<b>FREQUENCY</b>	12	18	30	25	15	10

# **BHM- 4TH SEM**

## **SUB:-EPIDEMIOLOGY & ANALYSIS OF HEALTH INFORMATION DATA**

### **PAPER CODE : BHMN-401**

1. Define and classify vaccines.
2. Distinguish between the term 'epidemic' and 'pandemic'. Describe the benefits of epidemiology.
3. What is Rheumatic heart disease? State the epidemiological factors. What are the measures of prevention you can take?
4. Define "cold life". Discuss any five types of cold chain equipment which are used today.
5. Describe natural history of disease.
6. Describe modes of intervention of disease.

## **SUB:-SUPPORT , UTILITY & CLINICAL SERVICES -II**

### **PAPER CODE: BHMN402**

1. State your concept about Transportation system and Ambulance services in a hospital.
2. Describe the different functions of ICU.
3. Mention the various policies and Procedures of the Blood Bank.
4. Write a short -notes on Physical medicine and Rehabilitation.
5. Bio- Medical waste collection and Disposal

## **SUB:-ENVIRONMENTAL & ECOLOGY**

### **PAPER CODE: BHMN-403**

1. Define food chain. Discuss grazing food chain with examples.
2. State the importance of Environmental Protection Act (1986).
3. Define ecology. Explain the ecological balance & its consequences of changes. Describe domestic waste water treatment with proper flow diagram.
4. Define the objectives of EIA. Mention the steps involved in the EIA process. Highlight eight(8) guiding principles of EIA.
5. Legislation vs. Social obligations for health care.

## **SUB:-FINANCIAL MANAGEMENT**

### **PAPER CODE: BHMN 404**

1. Discuss the methods of Capital budgeting decisions.
2. Discuss the difference between Net Present Value (NPV) & Internal Rate of return (IRR).
3. State the advantages & disadvantages of (a) IRR (b) NPV (c) PI
4. When is the capital rationing situation evaluated? How the capital rationing is done in case of divisible and individual projects?
5. Discuss the various instruments in Break-even analysis.
6. Discuss various component of working capital management.



# **SUB:-FUNDAMENTALS OF RESEARCH METHODOLOGIES**

## **PAPER CODE: BHMN 405**

1. What is Research Design? Briefly explain the features of a good research design. Elaborate in details different types of research design.
2. What do you mean by research? What are the objectives of research. Briefly explain the research process
3. Qualitative data vs quantitative data.
4. Explain the difference between research methods and research methodology.
5. What do you mean by Action Research?
6. Write a short note on depth interview as a data collection tool.

# **BCA- 4TH SEM**

## **SUB: DATABASE MANAGEMENT SYSTEM**

### **PAPER CODE: BCAN401**

1. Consider the following schema:-  
Faculty(Fno, Name, Date-of-birth, DNO)  
Dept(DNO, Name, Bldg)  
Course(CNO, Name)  
Teaches(FNO,CNO)

Write SQL statements to do the following:

- i) Find the name of the faculty members who work in the same building as faculty member with no. '104'.
- ii) Find the name of the faculty members who are teaching at least one course which the faculty member no. '101' is not teaching.

2. What do you mean by normalization? What do you mean by decomposition? Define 1NF, 2NF, 3NF with suitable example.

3. Define the following terms:

- (i) super key
- (ii) Candidate key
- (iii) Primary key
- (iv) Foreign key

4. Discuss ACID property of a transaction with example. What is atomicity? What is concurrency? Draw a state diagram and discuss the typical states that a transaction goes through.

5. Draw the overall structure of DBMS and explain its various components. Define the 3-Schema Architecture of DBMS.

6. Draw an ER-diagram for a hospital with a set of patients and a set of medical doctors, with each patient a log of the various conducted tests is also associated.

## **SUB: PROGRAMMING WITH JAVA**

### **PAPER CODE: BCAN 402**

1. Describe features of Object-Oriented Programming.
2. Explain with example various Loops.
3. Explain with example class and object.
4. What is overloading Methods? Give an example.
5. What is overloading Constructors? Give an example.

## **SUB: COMPUTER NETWORKING**

### **PAPER CODE: BCAN 403**

1. What is Computer Network? Explain different components of computer.
2. What is topology? Explain different types of Topology with proper diagram.
3. Explain Circuit switching, Packet switching and Message Switching.
4. What are the layers in OSI Reference Models? Describe each layer briefly.
5. What are the layers in TCP/IP Models? Describe each layer briefly.

## **SUB: NUMERICAL ANALYSIS**

### **PAPER CODE: BMN 401**

1. Establish the Newton's forward interpolation formula.
2. Write down the approximate representation of  $2/3$  correct up to four significant figures and find i) absolute error ii) relative error iii) percentage error
3. Derive Lagrange's interpolation formula for  $(n+1)$  equally space points  $x_0, x_1, x_2, x_3, \dots, x_n$ . Show that Lagrange's polynomial is unique.
4. Describe Newton Raphson method to find a real root of an equation  $f(x)=0$
5. Calculate by Simpson's  $1/3$  rule the value of  $\int_{1.2}^{1.6} \left(x + \frac{1}{x}\right) dx$  correct up to two significant figures, taking four intervals. Why the rule is called 'one third'.

## **SUB: DATABASE LAB**

### **PAPER CODE: BCAN-491**

1. Answer this question in SQL:
  - a) Create a table Employee with attributes Name, ID, Address, phone no, Gender, Salary, Age, Dept.
  - b) Insert 10 columns into this table with various data with this attribute.
  - c) Show the table.
  - d) Add a new column Country into this table.
  - e) Modify Address = 'Kolkata' whose Id is 001.
  - f) Select name, salary from Employee whose address is 'Bangalore' and age less than 25.
  - g) Select Employee salary in ascending/descending order.
  - h) Select Employee city wise.
  - i) Select Employee whose name starting from 'A'
  - j) Select Employee average salary.
  - k) Select employee dept, sum of the salary order by salary.
  - l) Select Employee details whose salary is between 10000 to 50000.

## **SUB: PROGRAMMING LAB WITH JAVA**

### **PAPER CODE: BCAN-492**

1. Java Program to check if a number is Positive or Negative
2. Java Program to check Armstrong number
3. Java Program to Calculate Area and Circumference of Circle
4. Java Program to display Fibonacci series using loops
5. Java Program to find Factorial using loops

## **SUB: SOFT SKILL DEVELOPMENT LAB**

### **PAPER CODE: BCAN-481**

1. How self-development contributes to effective communication ?
2. What are interpersonal skills ?
3. How interpersonal skills can be improved ?
4. What should be the behaviour of interviewee during the interview ?
5. How group discussion can be made effective ?
6. Mention some soft-skills which appears as essential traits among employees?

## **BBA- 4TH SEM**

## **SUB: PRODUCTION & MATERIALS MANAGEMENT**

### **PAPER CODE: BBAN401**

- 1) Explain the objectives of Materials Management.
- 2) Explain the factors that determine plant Location.
- 3) Explain the principles of Plant-Layout.
- 4) Explain the Scope of production and Materials Management.
- 5) Write a short note on Quality Control.

## **SUB: MANAGEMENT INFORMATION SYSTEM**

### **PAPER CODE: BBAN402**

1. What is DATA? What is INFORMATION? What are the main characteristics of MIS?
2. Describe different steps of Waterfall Model with Proper diagram.
3. How many types of topologies are present in networking explain with diagram.
4. What is meant by Decision support System? What are the components of DSS? How the DSS is differing from MIS?
5. What is RDBMS? How does it organize data? What are the three operations of RDBMS?

## **SUB: COST ACCOUNTING**

### **PAPER CODE: BBAN403**

1. Write four essential features which a good Cost Accounting System should possess?
2. What is economic ordering quantity? How do you calculate economic order quantity?
3. What is Labour turnover and how is it calculated?
4. How do you calculate overhead recovery rate?
5. What do you mean by transport operating costing? How is transportation cost calculated?

## **SUB: MARKETING MANAGEMENT**

**PAPER CODE: BBAN404**

1. What is SWOT analysis? What is its importance?
2. Discuss the importance of PEST analysis in the context of marketing environment elements.
3. What do you mean by new product? Illustrate the stages involved in New Product Development (NPD) with an example.
4. Define the concept of Consumer Behavior. What are factors of consumer buying behavior? Explain Consumer Buying Process in details.
5. Discuss the different stages of a 'Product Life Cycle', giving implications of the changes in strategy for each stage. Name and define the different types of consumer products, explaining marketing conditions and giving examples of each. Elucidate the STPD concept of marketing.
6. What are the methods of pricing?

## **SUB: HUMAN RESOURCE MANAGEMENT-I**

**PAPER CODE: BBAN405**

- 1) Define HRM. What is the importance of HRM?
- 2) What are the objectives of Training? Discuss the need for training in modern Industry.
- 3) Discuss the objectives and process of Career Planning.
- 4) Explain the nature and Scope of HRM.
- 5) Write a short note on Performance Appraisal.
- 6) Discuss the steps involved in selection process in detail.

## **MCA- 4TH SEM**

### **SUB: SOFTWARE ENGINEERING & TQM**

**PAPER CODE: MCA401**

1. Explain different stages of Classical Waterfall Model with diagram? How it is differ from Iterative waterfall model?
2. What is prototype? Explain different steps of Spiral model with proper diagram.
3. Briefly explain the object oriented design and analysis methodology.
4. What is COCOMO model? Explain 3 types of COCOMO model with their characteristics.
5. A project size is 1000 KLOC is to be developed. Software development team has better experience on similar type of projects. The project schedule is easy. Calculate the effort, development time, average staff size and productivity of the project.

### **SUB: GRAPHICS & MULTIMEDIA**

**PAPER CODE: MCA 402**

Explain with suitable example:

1. DDA Line Drawing Algorithm
2. Bresenham's Line Drawing Algorithm
3. Mid-Point Circle Drawing Algorithm
4. Bresenham's Circle Drawing Algorithm
5. Mid-Point Ellipse Algorithm

## **SUB: DATABASE MANAGEMENT SYSTEM-II**

### **PAPER CODE: MCA-403**

1. Consider the following schema:- Faculty (Fno, Name, Date-of-birth, DNO)  
Dept(DNO, Name, Bldg)  
Course(CNO, Name)  
Teaches(FNO,CNO)

Write SQL statements to do the following:

- i) Find the name of the faculty members who work in the same building as faculty member with no. '104'.
  - ii) Find the name of the faculty members who are teaching at least one course which the faculty member no. '101' is not teaching.
2. What do you mean by normalization? What do you mean by decomposition? Define 1NF, 2NF, 3NF with suitable example.
3. Define the following terms:  
(i) super key                      (ii) Candidate key                      (iii) Primary key                      (iv) Foreign key
4. Discuss ACID property of a transaction with example. What is atomicity? What is concurrency? Draw a state diagram and discuss the typical states that a transaction goes through.
5. Draw the overall structure of DBMS and explain its various components. Define the 3-Schema Architecture of DBMS.
6. Draw an ER-diagram for a hospital with a set of patients and a set of medical doctors, with each patient a log of the various conducted tests is also associated.

## **SUB: OPERATION RESEARCH & OPTIMIZATION TECHNIQUES**

### **PAPER CODE: MM 401**

1. Solve the following Travelling salesman problem.

	A	B	C	D	E	
A	—	7	6	8	4	A
B	7	—	8	5	6	B
C	6	8	—	9	7	C
D	8	5	9	—	8	D
E	4	6	7	8	—	E

2. Solve the following balanced Transportation problem by using VAM to determine the initial B.F.S

$D_1 \quad D_2 \quad D_3 \quad D_4$

$O_1$	9	8	5	7
$O_2$	4	6	8	7
$O_3$	5	8	9	5
$b_j$	8	18	13	3
				42

3. Solve the L.P.P by two phase method

Minimize,  $z = 3x_1 + 5x_2$

Subject to

$$x_1 + 2x_2 \geq 8$$

$$3x_1 + 2x_2 \geq 12$$

$$5x_1 + 6x_2 \leq 60, \quad x_1, x_2 \geq 0$$

4. Solve the L.P.P using artificial variables

Minimize,  $z = -3x_1 + 2x_2$

Subject to

$$x_1 - 4x_2 \leq -14$$

$$-3x_1 + 2x_2 \leq 6, \quad x_1, x_2 \geq 0$$

5. Solve the L.P.P using artificial variables

Minimize,  $z = 2x_1 - x_2 + 3x_3 + x_4$

Subject to  $2x_1 + x_2 + 3x_3 + 5x_4 \leq 12$

$$3x_1 + 2x_2 + x_3 + 4x_4 \leq 15, \quad x_1, x_2, x_3, x_4 \geq 0$$

## SUB: ENVIRONMENT & ECOLOGY

### PAPER CODE: HU 401

1. Define the term environment. What is Biome? What is biodiversity?
2. What is greenhouse effect? Name major greenhouse gases. What are the effects of greenhouse gases on the global climate?
3. What is acid rain and how does it develop? What are the effects of acid rain?
4. What is Ozone hole? How does it happen chemically in the stratosphere?
5. What is noise pollution? What are the sources of noise pollution? How is human system affected with noise pollution?
6. What are different types of solid wastes? Discuss the modes of municipal waste disposal.