

## **Model Question (IT 233: Digital Logic)**

### **Group A**

**Brief answer questions:**

**Attempt all questions.**

**(10 X 1=10)**

1. What do you mean by digital computer?
2. Classify the binary number.
3. What do you mean by 2's complement
4. NAND gate is universal gate. Justify
5. What is Boolean algebra?
6. What do you mean by SOP?
7. Define PLA.
8. What do you mean by flip flop?
9. Define registers.
10. What do you mean by ripple counter?

### **Group B**

**Short Answers Questions**

**Attempt any five questions.**

**(5 × 3= 15)**

11. Describe the octal and hexadecimal numbers.
12. Discuss the basic theorems and properties of Boolean algebra.
13. Explain the don't care condition with example.
14. Design full adder with truth table.
15. Differentiate between multiplexers and demultiplexers
16. Explain D-flip-flop.

### **Group C**

**Long Answer Questions**

**Attempt any three questions.**

**(3× 5= 15)**

17. Design a half subtractors logic circuit using only NOR gate.
18. Convert the following decimal numbers into hexadecimal and octal number.
  - (a) 305
  - (b) 225
19. Describe the three-variable K-map with example.
20. Explain the triggering of flip-flop with example.

### **Group D**

**Comprehensive Questions**

**Attempt all questions.**

**(2 × 10 = 20)**

21. What do you mean by ripple counter? Design the 4-bit ripple counter with timing diagram.
22. Differentiate between sequential and combinational logic .Explain the steps to design of combinational logic.

## **Model Question (IT 235: Discrete Structure)**

### **Group A**

**Brief answer questions:**

**Attempt all questions.** **(10 X 1=10)**

1. What does it mean for two propositions to be logically equivalent?
2. Convert "If an integer is not even, then it is odd" into equivalent logical expression.
3. Find the seventh term of  $(x + 2y)^{10}$ .
4. What do you mean by recursive algorithm.
5. State sum rule and product rule of counting.
6. How permutation differ from combination.
7. Define wheel graph with example.
8. What is game tree?
9. Define degree of tree with example.
10. List out any three applications of graph.

### **Group B**

**Short Answers Questions**

**Attempt any five questions.** **(5 x 3= 15)**

11. Show that if  $n$  is an integer and  $n^3+5$  is odd, then  $n$  is even using a proof by contraposition.
12. Prove that  $n^3+2n$  is divisible by 3, using mathematical induction.
13. State the pigeon hole principle. How many numbers must be selected from the set  $\{1,3,5,7,9,11,13,15\}$  to guarantee that at least one pair of these numbers add up to 16?
14. Write a Euclidean algorithm to compute GCD of any two positive integers.
15. Explain simple, muti and pseudo graph with example.
16. Define binary search tree. Construct the binary search tree of: 8,3,1,10,6,14,7.

### **Group C**

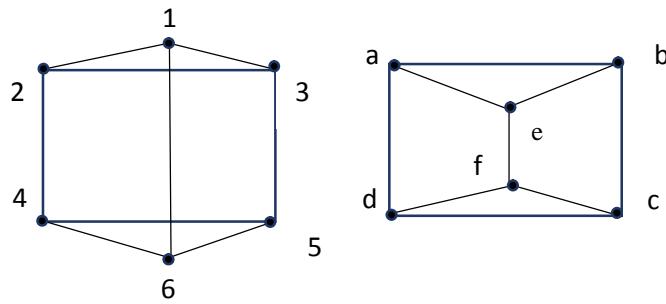
**Long Answer Questions**

**Attempt any three questions.** **(3x 5= 15)**

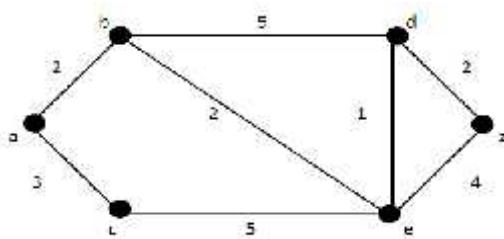
17. Show that the hypotheses "If you send me an e-mail message, then I will finish writing the program," "If you do not send me an e-mail message, then I will go to sleep early," and" if I go to sleep early, then I will wake up feeling refreshed" lead to the conclusion" If I do not finish writing the program, then I will wake up feeling refreshed."
18. State Chinese remainder theorem. Find all solution to the system of congruences.

$$x \equiv 2 \pmod{3}, x \equiv 1 \pmod{4}, x \equiv 3 \pmod{5}$$

19. Determine whether the following graphs are isomorphic or not.



20. What is minimum spanning tree? Find the minimum spanning tree for the following graph by using Kruskal's algorithm.



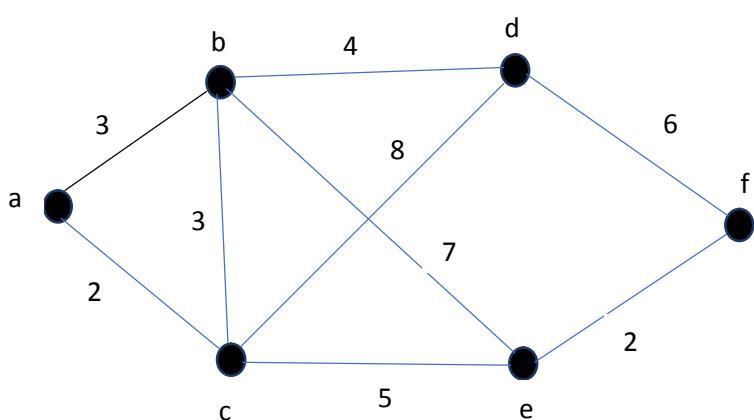
### Group D

#### Comprehensive Questions

**Attempt all questions.**

**(2 × 10 = 20)**

21. Define linear homogeneous and non-homogeneous recurrence relation with constant coefficients with example. Solve the recurrence relation  $a_n = 2a_{n-1} + 5a_{n-2} - 6a_{n-3}$  for  $n \geq 3$ , with  $a_0 = 7$ ,  $a_1 = -4$  and  $a_2 = 8$ .
22. What do you mean by shortest path problem? Write Dijkstra's algorithm to find the shortest path. Apply this algorithm to find the shortest path between a to every other vertex for the following graph.



**BIM / Second Semester / MGT 241: Organizational Behavior & Human Resources Management**

*Candidates are required to answer the questions in their own words as far as practicable.*

**Group “A”**

***Brief Answer Questions:***

**[ $10 \times 2 = 20$ ]**

1. Point out any two features of organizational behavior.
2. Make a list of any four factors affecting perception.
3. List out any two features of Type A personality.
4. Define organizational change.
5. What is dysfunctional stress?
6. Define the quality of work life.
7. What is meant by training need assessment?
8. List out any four methods for performance appraisal.
9. Write down any four qualities of effective rewards.
10. What do you mean by green-HRM?

**Group “B”**

***Short Answer Questions:(Attempt any SIX Questions)***

**[ $6 \times 5 = 30$ ]**

11. Explain in brief increasing need of the study of organizational behavior
12. State and describe different factors affecting the learning.
13. Summarize The Big Five Personality traits.
14. Infer how does job satisfaction influence employee performance.
15. What are the organizational stressors? Describe in brief.
16. Prepare and design a Job Description for a job title ‘IT officer’ in a hotel.
17. Distinguish between recruitment and selection.

**Group “C”**

***Long Answer Questions:(Attempt any THREE Questions)***

**[ $3 \times 10 = 30$ ]**

18. Training is being a critical success factor for any organization but the selection of appropriate training method is crucial. Based on this, appraise different off-the-job training methods used in an organization.
19. Employees’ behaviors are most influencing factors for the consumer satisfaction and their retention. Manager’s role is increasing in dealing with employees’ behavior. In this note, evaluate the new challenges for manager in organizational behavior.

20. Critically evaluate the application of attribution theory with the different attribution errors.
21. Critically judge the quality of effective reward system adopted by Nepalese organization.

### **Group “D”**

**Comprehensive Questions / Case / Situation Analysis:** [4 × 5 = 20]

22. Read the following case carefully and answer the questions that follow:

It was 1:45 PM, on the third working day of second week of April, 2022, researcher encountered a restaurant around the heart of Kathmandu City for taking light tiffin. Within the restaurant, there are two chambers, one inside of the other. Both the chambers were full of smokes of cigarette around 24 customers, well dressed, were busy with their mate's taking cigarette and their meal, or tiffin. The environment was quite surprising to the researcher as he was aware of the initiation of organization in the healthy employee concept.

With higher confidence, it was easy to distinguish the customers that they were from different financial institutions (from their discussion and the dress codes). Almost of them, all were middle aged and few were looking just started their career. Researcher decided to be a part of the situation as to examine the assistance of employees in the healthy employee campaign of the sector.

With gentle approach, researcher asked to one of gentlemen sitting on the last table with three gentle women sharing the table, where they belong to. He gently introduced his name, as an employee working in one of the reputed organization around. He briefly reported that he started the career three years earlier but joined the current organization just two months ago. (Without hesitation, all the four asked one more stick of cigarette for each after completing their meal) with lighting the cigarette, he explained the new web of cigarette culture among the employees, and further reported that his three lady coworkers are new members of the smoking club. He reported that, 2 employees among each 3 used to smoke whatever may be occasion and frequency. Reasons could be varied: socialization, refreshment (as some say), addiction, or any other. With little shy, one of the lady reported that it is being one of the business curtsey in this sector, and means of social hanging. Interestingly, almost from each table, they were demanding more sticks.

Next day, researcher reached to the same restaurant an hour earlier, thinking that he could meet new people. As per the plan, he met another set of employees, interestingly again from the career of yesterday. Story was not new and different from yesterday. Researcher asked to the manager at the cash counter regarding the sales of smokes, she replied that sales of smoke generates all the fixed cost of the restaurant.

Organizations, on the other hand, are investing a huge capital to maintain healthy working environment and healthy employees. Different initiations like compulsory leave provisions with additional pay, sick leave, casual leave, insurance, etc. are the common provisions in modern organizations. With ground reality, a major question emerges as whether the initiation of organization is enough to maintain healthy employees.

#### **Question:**

- a. Sketch the synopsis of above case with major issues and problems.
- b. Based on the case, how do you trace the changing life style of employees
- c. If you were HR manager, what initiations do you suggest to the top-level management to maintain healthy employees? Justify with an example

- d. Using the attribution error, what can be the researchers' judgment towards the young employees? Describe



## **Model Question (IT 234: Object Oriented Programming with Java)**

### **Group A**

**Brief answer questions:**

**Attempt all questions.** **(10 X 1=10)**

1. What is bytecode?
2. Differentiate between break and continue.
3. What do you mean by associativity of an operator?
4. How two-dimensional array is declared in Java?
5. Why constructor is needed?
6. What is garbage collection in Java?
7. What do you mean by dynamic method dispatch?
8. What is the difference between final and finally keyword?
9. What is wildcard in java?
10. Define autoboxing with example.

### **Group B**

**Short Answers Questions**

**Attempt any five questions.** **(5 × 3= 15)**

11. Write a program to demonstrate the use of logical OR, AND, and NOT operator with suitable example.
12. Write a java program to find the second largest element in an array.
13. Write a java program to illustrate the concepts of method overloading.
14. Write a program by using generic method to swap the positions of two different elements in an array.
15. Write a java program to find the factorial of any positive integer given by user using recursion.
16. Explain for-each statement with suitable example.

### **Group C**

**Long Answer Questions**

**Attempt any three questions.** **(3× 5= 15)**

17. Create a Shape interface having methods area() and perimeter(). Create two subclasses, Circle and Rectangle that implement the Shape interface. Create a class Sample with main method and demonstrate the area and perimeters of both the shape classes. You need to handle the values of length, breath, and radius in respective classes to calculate their area and perimeter.
18. Create a class Student with private member variables name and percentage. Write methods to set, display, and return values of private member variables in the Student class. Create 10 different objects of the Student class, set the values, and display name of the Student who have highest average\_marks in the main method of another class named StudentDemo.

19. Differentiate between Checked and Unchecked Exceptions. Write a program to illustrate the concept of `ArrayIndexOutOfBoundsException`.
20. Write a Java program to read data from the file “text.txt” and write the data into the file “best.txt”.

### **Group D**

#### **Comprehensive Questions**

**Attempt all questions. (2 × 10 = 20)**

21. Explain the OOP principal followed by Java. What are the restrictions when the method is declared as static? Write a java program to illustrate the concepts of static method.
22. What is inheritance? What are the advantages of using inheritance? Explain different types of inheritance with example of each.