

**Tribhuvan University**  
**Faculty of Management Model**  
**Question 2024**

Full Marks: 60
Pass Marks: 30
Time: 3

**BIM/Fifth Semester/ IT 228:Artificial Intelligence**

**Group A Brief answer  
questions:**

**Attempt all questions.**

**(10 X 1=10)**

1. How do you define right behavior?
2. Does machine perform biased behavior?
3. What is the purpose of Turing test?
4. How does economics help in AI?
5. Write the limitation of goal-based agent.
6. Which agent will consider the degree of happiness?
7. Differentiate between training and testing in machine learning.
8. Define recurrent neural networks.
9. What is the task of activation function?
10. What is machine translation?

**Group B**  
**Short Answers Questions**

**Attempt any five questions.**

**(5 × 3= 15)**

11. Discuss the component of Expert system.
12. Explain the structure of learning agent.
13. Discuss the limitations of Depth Limited Search.
14. Represent the sentence “Ram gave a book to Shyam” and “Hari opened the door” using conceptual dependency
15. What is GAN? When do you prefer deep learning over classical approaches?
16. Differentiate between single layer and multilayer perceptions.

**Group C**  
**Long Answer Questions**

**Attempt any three questions.**

**(3× 5= 15)**

17. Assume initial population as 0110, 1100, 1110, 1001 with fitness function  $f(x) = x^2$ ,  $0 \leq x \leq 15$ , 2 point cross over and bit flip mutation operation, Compute the fitness value of children after first interaction.

18. Use resolution to show that the hypothesis, “It is not raining or Biyana has her umbrella”, “Biyana does not have her umbrella or she does not get wet”, “It is raining or Biyana does not get wet” imply that “Biyana does not get wet.”
19. Define NLU and NLG. Describe the significance of pragmatic analysis in NLP with example.
20. Discuss the mathematical model of an Artificial Neural Network (ANN). Explain about Perceptron learning algorithm.

**Group D**  
**Comprehensive Questions**

**Attempt all questions.**

**(2 × 10 = 20)**

Figure1: Graph of cities

21. Difference between DFS and BFS. How does A\* search use Heuristic information to expand the node? Explain.
22. Define fuzzy set and how do you define membership in fuzzy set? After your yearly checkup, the doctor has bad news and good news. The bad news is that you tested positive for covid and the test is 99% accurate. The good news is that this is rare disease, striking only one in 20,000 people. Why is it good news the disease is rare? What are the chances that you actually have disease?

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**BIM/Fifth Semester/ IT 242: Software Design and Development**

**Group A**  
**Brief answer questions:**

**Attempt all questions.**

**(10 X 1=10)**

1. List any two limitation of water fall model.
2. What is Network Diagram?
3. Mention any two differences between DFD level 0 and DFD level 1.
4. Define Integration Testing.
5. Define Preventive Maintenance.
6. Define Activity Diagram.
7. What does reviewing the baseline project plan mean?

8. What is the use of a decision table?
9. Define Relation in Database Design.
10. Mention any Two differences between structural and behavioral models.

**Group B**  
**Short Answers Questions**

**Attempt any five questions.**

**(5 × 3= 15)**

11. Explain Prototyping Model.
12. What is Project Feasibility Study? Explain.
13. Explain System Maintenance with its Types.
14. Discuss the Importance of Object-Oriented Development with Example.
15. Mention Factors to Consider While Designing Interfaces and Dialogues
16. What Are Organizational Issues in System Implementation?

**Group C**  
**Long Answer Questions**

**Attempt any three questions.**

**(3× 5= 15)**

17. What are the key consideration when deciding to use supertypes and subtypes in data modelling? Explain with example.
18. Explain the process of initiating and planning IS Development projects.
19. What is the importance of normalization in system design? Illustrate with example.
20. Draw a level 1 DFD for a movie ticket booking system. This system allows user to search movie, select show and seats, make payment and confirm booking.

**Group D**  
**Comprehensive Questions**

**Attempt all questions.**

**(2 × 10 = 20)**

21. How does Agile development improve software development process? Discuss the challenges organization might face when implementing Agile development and how they can be addressed to ensure effective project management.
22. Draw the use case diagram and sequence diagram for Hospital Management System, such as patient admissions, doctor appointments, treatment scheduling, billing, and report generation. Different user including doctors, nurse, administrative staff, and patients interact with the system to perform their respective tasks.

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**BIM/Fifth Semester/ IT 243: Programming with Python**

**Group A**

**Brief answer questions:**

**Attempt all questions.**

**(10 X 1=10)**

1. What is the output of `print(3 ** 3) / (3**2)`?
2. What happens when the `pass` statement is executed?
3. Define escape sequence .
4. Define lambda function.
5. How do you check if a key exists in a dictionary?
6. Why do we need abstract class?
7. How can you convert a string to a list in Python?
8. What is the task of static method?
9. What is tuple data type?
10. How do you return multiple values in function?

**Group B**

**Short Answers Questions**

**Attempt any five questions.**

**(5 × 3= 15)**

11. What is the purpose of the `try-except` block in Python? Give an example.
12. Create a program that counts the number of vowels in a given string.
13. Describe the importance of DataFrame.
14. Create a NumPy array of 10 random integers.
15. How do you create and call the function?
16. Create a program that converts a list of integers to a set.

**Group C**

**Long Answer Questions**

**Attempt any three questions.**

**(3× 5= 15)**

17. Write a program to read a string as input and write it to the file.
18. How do you draw bar chart and pie chart? Illustrate with example.
19. List and explain any five built-in data types.
20. Create a list of ten random numbers and sort it.

**Group D**  
**Comprehensive Questions**

**Attempt all questions.**

**(2 × 10 = 20)**

21. Consider a database named college with table student(id, name, address, phone, semester, faculty). Write a program to insert any five records and retrieve the name and address of students who studied in fifth semester.
22. What are the limitation of operator overloading? Write a program to create a class vehicle with attribute speed. Create a subclass car and truck that inherits from vehicles and adds an attribute fuel-type. Then create another sub class EV car that inherits from car and add a method charge-battery().



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**BIM/Fifth Semester/ IT 244 : Information Security**

**Group "A"**

**Brief answer questions:**

**Attempt all questions.**

**(10 x 1=10)**

1. Define Attack.
2. What is product cipher?
3. Why is Digital Signature used?
4. Define Authentication.
5. Describe Honeypot.
6. List the differences between zombie and bots.
7. List any two uses of VPN.
8. Define IT Security Management.
9. Define Cryptography.
10. List any two Intrusion Detection Analysis Approaches.

**Group B**

**Short Answers Questions**

**Attempt any five questions.**

**(5 × 3= 15)**

11. Explain Token-Based Authentication with Example.
12. Define Intruder and explain its types.
13. Define Malicious Software. List the differences between virus and worm.
14. Explain the differences between security risk assessment and security risk analysis.
15. Explain Hash-based MAC (HMAC).
16. Explain CIA triad with example.

**Group C**  
**Long Answer Questions**

**Attempt any three questions.**

**(3 × 5 = 15)**

17. Define Message Digest. Explain the differences between MD4 and MD5.
18. How can we ensure the security of our organization's network? Explain.
19. Encrypt "Information Security" using any one substitution cipher and transposition cipher.
20. Explain any five security design principles with examples.

**Group D**  
**Comprehensive Questions**

**Attempt all questions.**

**(2 × 10 = 20)**

21. How does the implementation of logging function contribute to effective audit trail analysis in a security auditing architecture, and what are the key considerations while designing a security audit trail?
22. Explain basic overview and working of Diffie–Hellman Protocol. Find the shared secret 'S', if:

Prime number (p) = 13

Base/generator (g) = 6

Alice's private key (a) = 5

Bob's private key (b) = 7



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<b>Time: 3hrs</b>

<b>BIM/Fifth Semester/ MKT 201: Fundamentals of Marketing</b>
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*Candidates are required to answer all the questions in their own words as far as practicable.*

**Group “A”**

***Brief Answer Questions:***

***[10× 2 = 20]***

1. State the core concepts of marketing.
2. Differentiate between proactive and reactive marketing.
3. Point out the components of the marketing information system.
4. What are the major types of buying situation?
5. State the process of market segmentation.
6. Write down the factors influencing business buyer behavior.
7. What are the objectives of branding?
8. Define the concept of value-based approach of pricing.
9. Describe briefly about warehousing and inventory management.
10. State the nature of personal selling.

**Group “B”**

***Descriptive Answer Questions (Attempt any SIX questions)***

***[6× 5 = 30]***

11. Describe about the micro environment.
12. “The marketing can be more accurate and relevant through marketing research.” Based on this statement, explain the different steps that the marketers follow for research in various areas of marketing.
13. What do you mean by segmentation? Describe the essential requirements to make the segmentation effective.
14. Briefly explain the product line and mix strategies.
15. Give the concept of pricing and describe the factors affecting the pricing decisions.



16. Define distribution. Explain the channel design for consumer products.
17. Discuss the nature and objectives of sales promotion.

### **Group “C”**

**Analytical Answer Questions (Attempt any THREE questions)**

**[3 × 10 = 30]**

18. The business in Nepal generally fail due to less study and analysis of market situation and environment. Considering this statement, describe the marketing environment in Nepal.
19. Buying decisions become complicated based on high and low involvement of buyers. Considering these, clarify the different factors that impact the buying decisions of final consumers along with their buying process.
20. Explain the new product development process.
21. Describe the components of the marketing mix for products and services.

### **Group “D”**

**Comprehensive Answer Questions/Case Study:**

**[1 × 20 = 20]**

22. Analyze the following case carefully and answer the questions given below:

Dairy Development Corporation (DDC) hiked the price of milk by NPR 8-10 per liter, effective from December 31, 2023. Private dairies are also planning to raise the price by NPR 8 per liter from January 1, 2024. A DDC board meeting on 30<sup>th</sup> December took such a decision, considering farmers demand.

The farmers had been demanding a hike in the price by NPR 12 per liter, citing rising costs of fodder, animal feed and labor, according to DDC.

With the latest price revision, a green packet of DDC milk will cost NPR 50 (up from NPR 45) per liter. The milk available in red packet will cost NPR 46 (up from NPR 42). And, a blue packet will cost NPR 42 (up from NPR 38). The state-owned DDC had last jacked up the price in May.

“The price hike was inevitable amid mounting pressure from farmers” said general manager of DDC. “Farmers had been planning to launch a protest”. The president of Dairy Industries Association of Nepal said private dairies would also increase the price as they have to pay the same rates to the farmers. The DDC, however, said it would not hike prices of other dairy products immediately.

“As demand for other milk products such as yogurt and ice-cream is lower during winter, we are not planning to raise their prices immediately. The prices will, however, be revised with the arrival

of summer, when the demand surges,” said the general manager, adding 69 percent of the hiked price will go to farmers.

Three weeks ago, the central Dairy Cooperatives Association, an umbrella organization of milk farmers, had submitted a memorandum to the Ministry of Agriculture Development, the National Dairy Development Board demanding a hike in milk prices.

**Questions:**

- a. Why did DDC hike the price of milk recently? Explain.
- b. Do you think that the price hike by NPR 8 to 10 per liter by DDC is ethical from a social point of view? Give justifiable reasons.
- c. How would you evaluate the pricing decision of private dairies to follow the decision of DDC? What pricing approach has been adopted by the government?
- d. If you were appointed as a general manager of DDC, what pricing strategy would you adopt? Give your arguments.

