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. What is Cognitive Science?
2. How does Rule base agent work?
3. Define Omniscience.
4. Define Constraint satisfaction problem with example.
5. What is CNF form?
6. How do you define fuzzy logic?
7. Define Version space.
8. What is rational agent?
9. What do you mean by Machine Learning?
10. "NLP is important field in AI" Why?

Group B
Short Answers Questions

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

11. How syntactic and semantic analyses are performed in natural language processing?
12. What do you mean by Rational Agent? What are differences between Utility based Agent and Model based Agent?
13. What is state space representation? Illustrate with one example.
14. What is forward changing? Explain with appropriate example.
15. "Some time quantity became quality" Justify statement by the help of definition of AI.
16. How does Convolution Neural Network work? Explain

Group C
Long Answer Questions

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

17. How is machine learning is related to Artificial Intelligence? Explain.
18. Convert following sentences into Predicate Logic Knowledge base:
    a. Brothers are siblings.
    b. "Sibling" is reflexive.
    c. One's mother is one's female parent.
    d. A cousin is a child of a parent's sibling.
    e. All BIM students study AI and JAVA.

19. Represent the following sentences into a semantic network.
    a. Birds are animals.
    b. Birds have feathers, fly and lay eggs.
    c. Albatros is a bird.
    d. Donald is a bird.
    e. Tracy is an albatross.
20. What difference between computer vision and machine vision? Explain with its application areas.

Group D
Comprehensive Questions

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

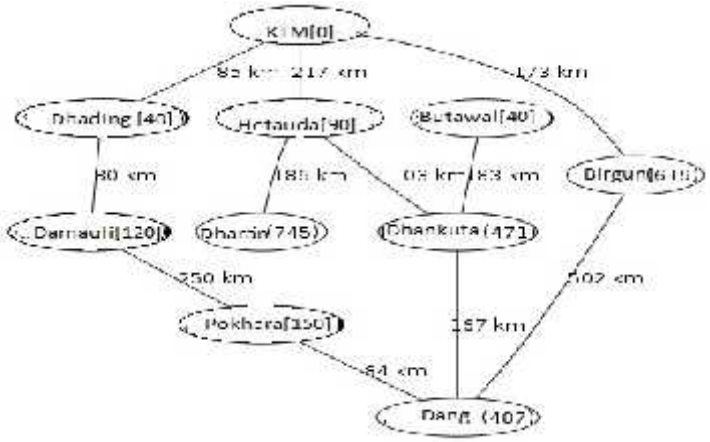

Figure1: Graph of cities

21. From the given graph [Figure1: Graph of cities], Trace graph and calculate actual path from Dang to KTM using following searching method and Compare their performance.
    a. A*
    b. Uniform Cost Search

22. How do you define problem? What are criteria for defining problem? Compare Constraint Satisfaction Problem and Real World Problem in detail with appropriate example.

Tribhuvan University
Faculty of Management
Model Question 2024

Full Marks:	**60**
Pass Marks:	**30**
Time:	**3**

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

Group A
Brief answer questions:

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

1. What is system analysis?
2. What is Gantt chart?
3. Define feasibility study.
4. Define process model.
5. Why do you need decision table?
6. Compare form with report.
7. What are interaction devices?
8. Define pilot installation.
9. What is system maintenance?
10. Why do you need use-case diagram?

Group B
Short Answers Questions

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

11. Explain heart of system development approach.
12. What are different project management activities.
13. Explain project identification and selection process in brief.
14. Why do you draw data flow diagram? What is context diagram?
15. Explain physical file and database design in brief.
16. How do you conduct systems maintenance?

Group C
Long Answer Questions

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

17. Explain prototyping approach to systems development with suitable diagram.
18. What are different types of feasibility tests?
19. Draw ER diagram for storing data about students, faculties, and courses at your college.
20. Explain the process of formatting forms and reports.

Group D
Comprehensive Questions

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

21. Draw context diagram and data flow diagrams up to level 2 of an online food ordering system to sell different food items to customers online.
22. Explain Agile development in detail. Explain class diagram with suitable example.

Tribhuvan University
Faculty of Management
Model Question 2024

Full Marks:	**60**
Pass Marks:	**30**
Time:	**3**

BIM/Fifth Semester/ IT 243: Programming with Python

Group A
Brief answer questions:

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

1. What is virtual environment?
2. What are the uses of pass statement?
3. What is tuple data type?
4. What is frozenset data type?
5. Define lambda function.
6. What is abstract class?
7. What are the uses of with statement?
8. Define array broadcasting.
9. What is data frame in pandas library?
10. List any four python web development frameworks.

Group B
Short Answers Questions

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

11. Explain membership operators with example.
12. Write a program to count number of vowels in a string.
13. Compare for loop with while loop. What is bread statement?
14. What is dictionary data type? Why do we need this data type?
15. Write a program using function to find sum of any numbers passed to the function.
16. How do you draw multiple plots in a single figure using matplotlib?

Group C
Long Answer Questions

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

17. Write a program to check a number entered is prime or not.
18. Explain match-case statement with suitable example.
19. Explain list comprehension with example.
20. Explain method overriding with suitable example.

Group D
Comprehensive Questions

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

21. Compare class with class. Create a class Rectangle containing instance variables length and breadth. The class also contains two instance methods area() and perimeter() to find area and perimeter of rectangles respectively. Use this class to find area and perimeter of two different rectangles.
22. Explain different benefits of relational databases. Assuming your own database and tables, write a program to insert and retrieve data from the database.

Tribhuvan University
Faculty of Management
Model Question 2024

Full Marks:	**60**
Pass Marks:	**30**
Time:	**3**

BIM/Fifth Semester/ IT 244 : Information Security

Group "A"

Brief answer questions:

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

1. What is the primary goal of computer security?
2. Define an attack surface in the context of security.
3. What is the significance of prime numbers in cryptography?
4. Differentiate between symmetric and asymmetric key cryptography.
5. What is the primary purpose of a digital signature?
6. What is the purpose of two-factor authentication?
7. Define intrusion prevention system.
8. What is backdoor?
9. What is the primary purpose of a firewall?
10. Why security audit is essential?

Group B

Short Answers Questions

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

11. Differentiate between threats, attacks, and assets in the context of computer security.
12. Explain the difference between substitution and transposition ciphers with examples.
13. Describe how biometric authentication works and its advantages over traditional authentication methods.
14. Compute whether 3 is primitive root of 7 or not.
15. What are security audit trails, and how do they play a role in tracking and analyzing security-related activities within an information system?
16. Explain the role of IT security management in an organization and its impact on overall security.

Group C

Long Answer Questions

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

17. Distinguish between stream cipher and block cipher. Encrypt the message “SECURITY IS IMPORTANT FOR EVERYONE” using rail fence cipher using 4 as number of rails.
18. What is the Public Key Infrastructure X.509? Discuss its role in network security.
19. Compare host-based intrusion detection Systems and network-based intrusion detection systems.
20. What is message digest? differences between MD4 and MD5.

Group D

Comprehensive Questions

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

21. Explain the process of encrypting and decrypting a message using the RSA algorithm. Given that the prime numbers chosen are p=11 and q=17, calculate the public and private keys, and then encrypt the message M=12. Show all steps in your calculations.
22. What is hash-based message authentication code. Explain design and working mechanism of digital signature algorithm, and how it ensures message integrity and authenticity.

Tribhuvan University
Faculty of Management
Model Question 2024

Full Marks: 100	
Pass Marks: 50	
Time:	**3hrs**

BIM/Fifth Semester/ MKT 201: Fundamentals of Marketing

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. Point out any four core concepts of marketing.
2. What are the fundamental principles of the new marketing concept?
3. Write down the steps of the organizational buying process.
4. What is internal marketing?
5. Enlist the steps of the marketing research process.
6. What is proactive marketing?
7. Give the meaning of the marketing environment.
8. Point out the marketing mix components for the service product.
9. What are the reasons to use a mix channel?
10. Give any four examples of sales promotion tools used in the Nepalese market.

Group "B"

Descriptive Answer Questions (Attempt any SIX questions) ***[6× 5 = 30]***

11. Define the marketing mix and describe its components with examples.
12. What is market segmentation? Explain the bases for consumer market segmentation.
13. Define marketing information systems. Differentiate between internal record system and marketing intelligence.
14. Show your acquaintance with the term 'shopping product' and also explain the marketing considerations required to sell such products effectively in the Nepalese market.
15. Draw the channel structure for consumer goods and explain what types of consumer goods are marketed through direct channels.
16. Give the meaning of pricing and also discuss the factors affecting pricing with suitable examples.
17. What is advertising? What are its features? Explain.

Group "C"

Analytical Answer Questions (Attempt any THREE questions) ***[3 ×10 = 30]***

18. "Marketing is creating, communicating, and delivering value for customer satisfaction." Do you agree or not? Give your arguments.

19. Discuss the marketing strategies suitable for various stages of the product life cycle.

20. "Marketing channels are critical in nature and influence all other marketing mix decisions." Elaborate.

21. You are the marketing manager of a biscuit company; discuss the factors that may have an effect on the selection of promotion mix decisions in your company.

Group "D"

Comprehensive Answer Questions/Case Study: ***[1 × 20= 20]***

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

Caterpillar is a leading manufacturer of construction and mining equipment. Its CEO, Donald Fites, publicly proclaims that the single biggest reason for Caterpillar's considerable success is its marketing channel. Fite's reasoning is tied to the nature of the Product category ("the machine that makes the world work"). Earth moving equipment is highly expensive, so industry unit volume is low. Thus, there are few points of sale. The products are complex but fairly standard. The same machine, with minor customization, can be sold to mining operations, farms, and construction projects throughout the world.

Caterpillar's strategy in this market is to charge a premium price, justified by differentiation on the basis of post-sales service. To ensure superior service, Caterpillar sells most of its products worldwide through a close network of alliances with only 186 dealers, all of them independently owned, two-thirds of them outside the company's North American home market. Caterpillar sells through independent dealers because, according to Fites, local dealers are long-standing members of their communities. They understand customers and can relate to them better than a global company can. For their customers, they serve as trusted sources of advice, financing, insurance, operator training, maintenance, and repair. To do this, Caterpillar forges alliances with dealers, who in turn are the face of the company to its customers. This does not mean dears are solely responsible for all channel flows. Caterpillar maintains an extensive inventory of parts, with guaranteed delivery anywhere within 48 hours. And Caterpillar makes investment in its dealers including:

- Territory exclusivity
- Strong working relations with dealer personnel
- Assistance in inventory management, logistics, equipment management and maintenance
- Joint marketing campaigns
- Technical training of dealer personnel

Dealers, in turn, make heavy Caterpillar-specific investments including:

- Exclusive dealing
- Multi-million dollar inventories of parts
- Heavy fixed investments in Caterpillar-specific equipment and information technology
- Joint marketing

- Training their customers in the use of Caterpillar equipment

Dealer and factory personnel work together to resolve product problems i.e. “sharing the pain and spreading the gain.” In this regard, Caterpillar refuses to do direct selling. Even when customers insist, the company refers the business to dealers.

Over time, a large stock of trust has accumulated. But there is also a reasonable level of conflict about the limit of service territories, product and pricing policies, and the dealer’s desire to diversify into other product categories Caterpillar does not serve.

Ultimately, Caterpillar credits its dealers with the manufacturer’s leading position as a global leader.

i. Discuss the main issues of the case.
ii. Critically evaluate the Caterpillar’s distribution strategies.
iii. Based on the above case, discuss the channel conflicts that arise within their channel.
iv. Suppose, Caterpillar is planning to enter Nepal, suggest the appropriate distribution strategy for the Nepalese market.