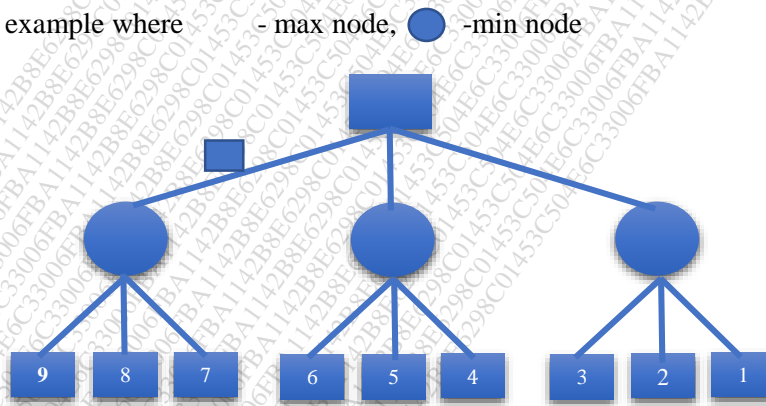


(Time: 3 Hours)

Total Marks:80

- N.B.:** (1) Question No. 1 is compulsory.
 (2) Attempt any **three** out of remaining **five**.

- Q1. a) What is PEAS descriptor? Give PEAS Descriptor for Taxi Driver. 4
 b) Write a note on conditional probability and its role in AI. 4
 c) Solve following Cryptarithmic problem 4
 SEND+MORE=MONEY
 d) Differentiate between propositional and predicate logic. 4
 e) Explain Expert system Shell in short. 4
- Q2. a) Given a full 4-gallon jug and an empty 3-gallon jug, the goal is to fill the 4-gallon jug with exactly 2-gallons of water. Give state space representation. 10
 b) Explain Hill Climbing and its Drawback in details. 5
 c) Explain A* Algorithm with an example. 5
- Q3. a) Consider the given game tree. Apply Alpha beta Pruning on following example where - max node, ● -min node 10



- b) Draw and Explain the Expert System Architecture. 5
 c) Formulate the state space search problems for 8 puzzle problem. 5

- Q4. a) Illustrate the Resolution Proof 10
- The law says that it is a crime for an American to sell weapons to hostile nations. The country Nono, an enemy of America, has some missiles, and all of its missiles were sold to it by Colonel West, who is American.
- (i) Represent the above sentences in first order predicate logic (FOPL).
 (ii) Convert them to clause form.
 (iii) Prove that “Colonel West is a criminal” using resolution technique.
- b) Give the comparative analysis of BFS, DFS, Depth Limit, Iterative deepening and Bidirectional search strategies with respect to Time Complexity, Space Complexity, Optimality and Completeness. 5
- c) List Down all types of Agents. Explain Learning agent with block diagram. 5
- Q5. a) Write a prolog program for Factorial. 5
- b) Represent the following sentence into FOPL. 10
- (i) Everyone who loves all animals is loved by someone.
 (ii) Ravi likes all kind of food.
 (iii) Every gardener likes the sun.
 (iv) Everybody loves somebody.
 (v) Apples are food.
- c) Explain a partial order planning with example. 5
- Q6. Write short notes on (Any Four): 20
- a) Forward chaining and Backward chaining
 b) Decision Tree
 c) Bayes theorem
 d) Inductive Learning and Rote Learning
 e) Properties of Agent Task Environment

3 Hours

[80 Marks]

- Note:** 1. Question Number 1 is compulsory.
 2. Solve any **three** from remaining questions.
 3. Figures to the right indicate full marks.
 4. Assume suitable data if necessary.

- (1) a. Consider a transmitter supporting 50 voice channels over an area of 150 kms. If this area is equally divided into 8 cells, each supported by lower power transmitters so that each cell supports 40% of the channels. Determine:
 i) The coverage area of each cell
 ii) Total area of voice channels available in cellular systems. **(10 marks)**
- b. Discuss the threats and challenges in wireless systems. Explain the different types of device security issues. **(10 marks)**
- (2) a. Define piconet and scatternet. Explain Bluetooth protocol stack structure. **(10 marks)**
 b. Explain WIMAX system and compare the different 802.16 standards. **(10 marks)**
- (3) a. What is Handoff? Explain the types of handoff. **(10 marks)**
 b. Explain the main factors of change in economics of wireless technology. **(10 marks)**
- (4) a. Write short note on Multiple Access Techniques **(05 marks)**
 b. Explain Hidden and exposed terminal problem with solution. **(05 marks)**
 c. Why is the concept of Spread Spectrum important? Briefly explain FHSS and DSSS concept. **(10 marks)**
- (5) a. Explain the GSM architecture with a neat diagram. **(10 marks)**
 b. Neatly explain the WLL Architecture. Explain the two local loop techniques with diagram. **(10 marks)**
- (6) Write short notes on **(any 2):** **(20 marks)**
 a. VPN
 b. Wireless sensor networks
 c. Zigbee Architecture
 d. Mobile IP
-

[Time: 3 Hours]

[Marks:80]

Please check whether you have got the right question paper.

- N.B:
1. Question No. 1 is compulsory
 2. Attempt any **Three** questions out of remaining.
 3. Assume suitable data if required.

Q. 1 Solve any Four:

- a) What are the attributes of a project? (05)
- b) Describe project life cycle and its relation with SDLC. (05)
- c) What are the advantages of having and following a project methodology? (05)
- d) Explain why a project's scope must be tied to the WBS. (05)
- e) Describe various stakeholders involved in the project. (05)

- Q. 2**
- a) Describe the five phases of IT project Methodology. (10)
 - b) Suppose you are the project manager of a large software development project. List three common types of risks that your project might suffer? Point out the main steps that you would follow to effectively manage risks in your project (10)

- Q. 3**
- a) Explain work breakdown structure with example. (10)
 - b) Difference between open and closed system. (05)
 - c) Describe the relation between MOV, scope and WBS. (05)

- Q. 4**
- a) Distinguish Resource loading from Resource levelling. Why is levelling of resources preferred to large fluctuations? (10)
 - b) As a project manager, identify the characteristics that you would look for in a Software developer while trying to select personnel for your team. (10)

- Q. 5**
- a) Explain the advantages of a functional organization over a project organization. Also explain why software development houses prefer to use project organization over functional organization (10)
 - b) What is outsourcing? Explain in brief the objectives of procurement management. (10)

- Q. 6**
- a) Consider the following project details as shown in table 1 and field report at the end of Day7 as shown in table 2, At the end of day 7, find (15)
 - 1) ACWP(AC)
 - 2) BCWP(EV)
 - 3) BCWS(PV)
 - 4) CV
 - 5) CPI
 - 6) SPI
 - 7) SV

Table 1

Activity	Predecessor	Duration (days)	Cost/Day	Total Cost
A	-	2	300	600
B	A	3	400	1200
C	B	3	400	1200
D	B	2	200	400
E	D	3	100	300

Table 2

Field report at end of day 7		
Activity	Actual % Complete	Incurred Cost
A	100	600
B	100	1400
C	33	500
D	50	200
E	0	0

b) Explain the steps involved in terminating a project.

(05)

(3 Hours)

Total Marks: 80

N.B.: (1) Question No.1 is compulsory.

(2) Attempt any three questions from the remaining five questions.

(3) Make suitable assumptions wherever necessary but justify your assumptions

Q1.

- a. How is line detected? Explain using the operators and also demonstrate by taking a set of points how edge linking can be done (10)
- b. Consider a color image of 1024x1024. If this image is transmitted across a channel of 2 Mbps, what will be the transmission time? (10)

Q2.

- a. Explain 4, 8 and m connectivity between pixels (10)
- b. Explain why the discrete histogram equalization technique does not, in general, yield a flat histogram. (10)

Q3.

- a. Find the DFT of the image (10)

$f(x,y)=$

1	2	3	2
2	3	4	3
1	2	3	2
2	3	4	3

Show the Magnitude and phase spectra

- b. Explain Homomorphic filtering in detail (10)

Q4.

a. Derive the contrast stretching transformation function (10)

b. What is morphology? Describe various morphological operations in detail. (10)

Q5.

a. Give a single intensity transformation function for spreading the intensities of an image so that lowest intensity is 0 and the highest is L-1. (10)

Q6. Write Short Note: (Any 4) (20)

a. Content Based Image Retrieval (CBIR)

b. Region Splitting and Merging

c. Filters in Spatial Domain

d. Ideal High Pass Filter

e. Lossy Compression Techniques

Marks- 80

Duration – 3hrs

- N.B. (1) Question no. 1 is compulsory.**
(2) Attempt any three from remaining five questions.
(3) Assume suitable data, if necessary.

- Q1. a. Compare Public and Community Cloud. **05**
 b. Explain SPI model of cloud computing. **05**
 c. What are the differences between ASP and SaaS? **05**
 d. Write key challenges in design and development of cloud applications. **05**
- Q 2. a. Explain GFS Architecture and benefits. **10**
 b. Explain the following w.r.t Eucalyptus **10**
 i) Features
 ii) Architecture
 iii) Elastic IP
 iv) Security Groups
- Q3. a. Explain Architecture of any bare metal hypervisor in detail **10**
 b. Explain Gartner's data Security challenges along with mitigation techniques. **10**
- Q4. a. Explain different cloud computing risks and benefits of Virtualization. **10**
 b. Explain public cloud adoption phases for SMBs and responsibilities of cloud Vendor towards SMBs. **10**
- Q5. a. Discuss the fundamental requirements for cloud application architecture. **10**
 b. Explain the Architecture of mobile cloud computing and Issue with Security as a Service. **10**
- Q6. Write a note on **20**
 1. AAA model
 2. Cloud Service Brokerage
 3. Amazon EC2
 4. Google Big table
