(Time: 3 Hrs)   **[Total Marks 80]**

N.B :   1. Question no 1 is compulsory, solve any 3 questions from remaining 5 questions.
         2. Assume Suitable data whenever necessary.
         3. Figures in the right indicate full marks.

Q 1)   a)   What is 4,8 and m-connectivity between pixels explain with example   5

        b)   Explain seperability property of 2-D DFT?   5
        c)   Explain Morphological Thickning operation with example?   5
        d)   Explain Homomorphic transform   5

Q 2)   a)   Explain fundamental steps in digital image processing?   10
        b)   Explain Histogram specification   10

Q 3)   a)   Explain the following frequency domain filters   10
                (1) Ideal Low Pass Filter (2) Butterworth High pass filter
        b)   Show that the median filter is not a Linear Filter   10

Q 4)   a)   Explain bit plain coding   10
        b)   Describe the basic principle of detecting the following in an image   10
                (i)   Point's   (ii) Lines   (iii) Edges
         Give a 3x3 mask for the same.

Q 5)   a)   Perform LZW encoding and decoding for the following sequence   10
         abababab
        b)   Explain any two boundary descriptors   10

Q 6)   Write short notes on(Any four)   20
            a)   Digital watermarking
            b)   Content based image retrieval
            c)   Hough Transform
            d)   Log Transform and Identity transform and their application
            e)   Hit and Miss transform

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Time: 3 Hours   **Total Marks:80**

Note : 1. Question number 1 is **compulsory.**
2. Solve any **three** questions out of the remaining **five** questions

(1) a. Explain the concept of frequency reuse. Assume a cellular system of 32 cells with a cell radius of 1.6 km, a total spectrum allocation that supports 336 traffic channels, and a reuse pattern of 7.Calculate the total service area covered with this configuration , the number of channels per cell, and a total system capacity. Assume regular hexagonal topology.   (10 marks)

    b. Detail the main factors of change in economics of wireless technology.   (10 marks)

(2) a. Define Piconet and Scatternet. Explain Bluetooth protocol stack structure.   (10 marks)
    b. Why is the concept of Spread Spectrum important? Briefly explain FHSS and DSSS concept.   (10 marks)

(3) a. Explain GSM architecture and explain how authentication and encryption is provided in GSM   (10 marks)

    b. Describe the System that uses 802.16 standard and also compare the different 802.16 standards.   (10 marks)

(4) a. Write short note on Zigbee Architecture   (05 marks)

    b. Explain Hidden and Exposed terminal problem with solution.   (05 marks)

    c. List the 802.11 MAC management functions. Explain in detail Power Management function with a neat diagram   (10 marks)

(5) a. Define the threats and challenges in wireless systems. Explain the different types of device security issues   (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. Mobile IP
    b. Wireless Sensor Networks
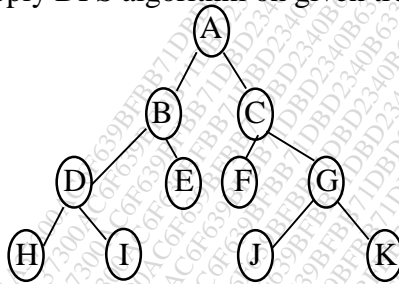   c. Handoff Strategies
    d.. VPN

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[Time: Three 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** out of remaining five.

Q.1   a)   Formulate 8 queens problem   04

       b)   Explain Learning Agent with diagram   04

       c)   Discuss Heuristic function for 8 puzzle problem   04

       d)   Explain components and structure of expert system   04
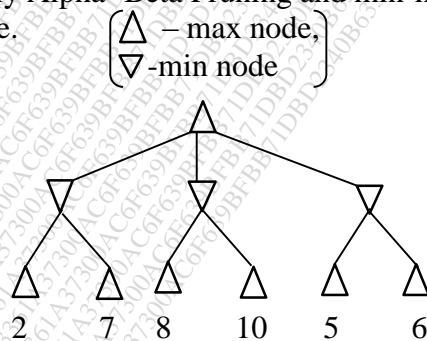
       e)   Solve following Cryptarithmetic problem   04

   L O G I C
+ L O G I C
‾‾‾‾‾‾‾‾‾‾‾
P R O L O G

Q.2   a)   Compare different uninformed search strategies.   10

       b)   Apply DFS algorithm on given tree. Write the sequence of nodes in which it is explored.   10

Q.3   a)   Define partial order planner. Explain STRIPS representation of planning problem.   10

       b)   What is prolog? Write Prolog program for family information system.   10

Q.4   a)   Explain WUMPUS world environment giving its PEAS description. Explain how percept   10
            sequence is generated?

       b)   Apply Alpha- Beta Pruning and min-max search on given game tree and find which is the next   10
            move. $\begin{pmatrix} \triangle - \text{max node,} \\ \nabla - \text{min node} \end{pmatrix}$

2   7   8   10   5   6

Page **1** of **2**

Q.5   a) Assume the following facts: 10
        i)   Steve only likes easy courses.
        ii)   Science course is hard.
        iii) All the Courses in the basket-weaving department are easy
        iv) BIB 301 is a basket-weaving course.

        Use resolution to answer the question "What course would Steve like?"

    b) What is uncertainty? Explain Bayesian Network with example.   10

Q.6 Write short notes on **any four**   20
    a) Type of Intelligent Agents.
    b) Hill Climbing.
    c) A^* Algorithm.
    d) Decision Tree.
    e) Cousal Normal form.

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[Time: Three Hours]   [Marks:80]

Please check whether you have got the right question paper.

N.B:(1) Question No.1 is compulsory.
(2) Out of remaining attempt any three.
(3) Assume suitable data wherever required.
(4) Figures to right indicate full marks.

Q.1   Solve any four   20
a) What is milestone? Why are they useful?
b) Explain business case.
c) Give the difference between product oriented deliverables and project oriented deliverables.
d) Give the difference between PERT and CPM.
e) What is projectitis? How can an organization minimize the likelihood of its occurrence?

Q.2 a) Explain the five phases of IT project methodology.   10
b) Explain the five scope management processes?   10

Q.3 a) Explain project estimation techniques   10
b) Explain in brief the objectives of procurement management.   10

Q.4 a) Distinguish resource loading from resource levelling. Why is levelling of resource is preferred to   10
large fluctuation.
b) What is the cost benefit analysis in projects? List the steps for performing costs benefit analysis.   10

Q.5 a) What is leadership? Explain various leadership styles.   10
b) What is project risk management? What are the RM processes?   10

Q.6 a) Discuss the statement: "Failing to define what not the part of the project is just as important as   10
failing to define what is part of the project."
b) What is meant by Communication Management? What is a channel in communication   10
management? Explain the different channels generally used in an IT organization.

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(Time: 3 Hrs)   **(Marks = 80)**

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

Q1. a. What are cloud computing characteristics?   **05**
    b. Differentiate between different types of virtualization?   **05**
    c. Discuss SaaS maturity models?   **05**
    d. Explain different cloud service deployment models?   **05**

Q2. a. Explain features and modes of Eucalyptus in detail.   **10**
    b. Explain Xen architecture in detail.   **10**

Q3. a. Explain Architecture of Google File System?   **10**
    b. Explain cloud data Security challenges?   **10**

Q4. a. Explain techniques for the risks assessment and Management for cloud?   **10**
    b. Explain AAA model for cloud computing?   **10**

Q5. a. Analyze the impact of shared resources and Multi-Tenancy on cloud app?   **10**
    b. What are the fundamental requirements for cloud application architecture?   **10**

Q6. Write a note on   **20**
    1. Cloud Service Brokerage
    2. Challenges of Mobile cloud Computing
    3. Amazon Web Service (AWS)
    4. Advantages of Big Table

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(3 Hours) **[Total Marks: 80**

N. B. i. Q. 1. Compulsory.
ii. Attempt any three from the remaining.
iii. Assume suitable data.

Q1 Develop a complete business plan for a startup to sell fresh vegetables online. (20)
It should include
The business model, strategic plan, Marketing plan, SCM and CRM plan,
Revenue model(s), mission, vision and objectives, Security concern, Payment
mode etc.

Q2 a) Identify the probable security threats in an E-commerce environment and (10)
suggest the appropriate tools to achieve site security.
b) Discuss the CRM strategy adopted by Dell Inc. to acquire, convert, retain and (10)
growth of the customer worldwide.

Q3 a) Explain any two of e-payment modes in detail. (10)
b) Explain the SOSTAC framework to promote the product. (10)

Q4 Attempt *any four*.
a) Comment on buy-side SCM. (05)
b) Discuss any two combinations of revenue models that can help in generating (05)
more revenue.
c) Discuss the 7 P's of e-marketing. (05)
d) What is the SLEPT framework? (05)
e) How can ethical issues affect e-marketing? (05)

Q5 a) Explain the multi-channel marketplace model. (10)
b) Discuss the porter's five forces with one appropriate example. (10)

Q6 Write a short note (Any 2)
a) Discuss 7s Strategic framework for change management. (10)
b) Comment on the drives, risks and impact of e-procurement. (10)
c) Draw a flow process chart showing the main operations performed by users (10)
on any of the e-commerce web-site.