

[Time: Three Hours]

[ Marks: 80]

Please check whether you have got the right question paper.

- N.B:
- 1) Question 1 is compulsory.
  - 2) Answer any 3 from remaining 5 Questions.
  - 3) Figures to the right indicate full marks.
  - 4) Assume suitable data wherever necessary

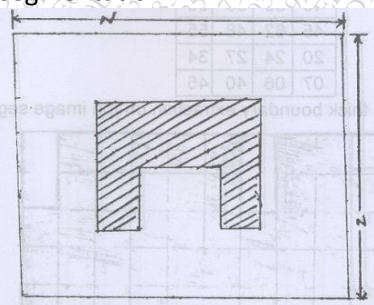
- Q 1 (a)** Draw the JPEG Encoder and describe the role of each block **10**
- Q 1 (b)** Explain the types of gray level transformation used for image enhancement **10**
- Q2 (a)** Explain Homomorphic filtering in detail. **10**
- Q2 (b)** What is a Median filter, maximum filter and minimum filter ?When is the median filter not effective in noise removal **10**
- Q3 (a)** What is histogram? Explain histogram equalization taking a pseudo image **10**
- Q3 (b)** 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  
OR  
Find the DCT of the above image

- Q4 (a)** Segment the image shown by using split and merge procedure. Let  $p(R_i) = \text{TRUE}$  if all pixels in  $R_i$  have the same gray level. Show the quadtree corresponding to your segmentation. **10**



- Q4 (b) Show that a median filter is a non linear filter 10
  
- Q5 (a) Explain 4, 8 and m connectivity between pixels 10
  
- Q5 (b) Explain euclidean, D4, D8 and Dm distance by taking a suitable example 10
  
- Q6 (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
  
- Q6 (b) Consider an 8- pixel line of gray-scale data, {12,10,13,13,10,13,57,54}, which has been uniformly quantized with 6-bit accuracy. Construct its 3-bit IGS code. 10

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**Note :**1. Question number 1 is **compulsory**.

2. Solve any **three** questions out of the remaining **five** questions

Q 1)

A) If a signal to interference ratio of 15dB is required for satisfactory forward channel performance of a cellular system , What is the frequency reuse factor (Q) and Cluster Size (N) that should be used for maximum capacity if the path loss exponent is as follows:

(i) n=4

(ii) n=3

Assume there are six co-channel cells in the first tier and all of them are at same distance from mobile. Use suitable approximations. **(10 marks)**

B) Explain Piconet and Scatternet with respect to Bluetooth **(5 marks)**

C) Explain the advantages and disadvantages of using wireless communication **(5 marks)**

Q 2)

A) Explain the Wireless Multiple Access Techniques with suitable diagrams **(10 marks)**

B) Explain the ZigBee (LR-WPAN) Stack Architecture with a neat diagram **(10 marks)**

Q3)

A) List and explain the Types of channels of GSM and compare GSM with CDMA **(10 Marks)**

B) Draw and explain the main components of Wireless Local Loop (WLL ) Architecture **(10 Marks)**

Q4)

A) Explain the possible attacks on Wireless LAN and explain WEP in detail. **(10 Marks)**

B) Explain in detail the WLAN Architecture with neat diagrams. **(10 Marks)**

Q5)

A) Explain the evolution of cellular systems highlighting 1G/2G/3G and 4G **(10 Marks)**

B) What is Spread Spectrum? Explain FHSS and DSSS. **(10 Marks)**

Q6) Answer **any two** of four. **(20 Marks)**

A) WiMax

B) Economics of Wireless Networks

C) Electromagnetic Spectrum

D) Frequency Reuse

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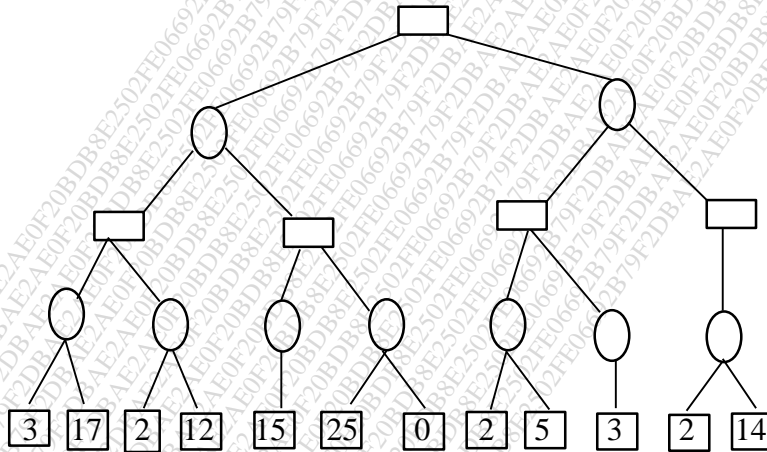
[Time: Three Hours]

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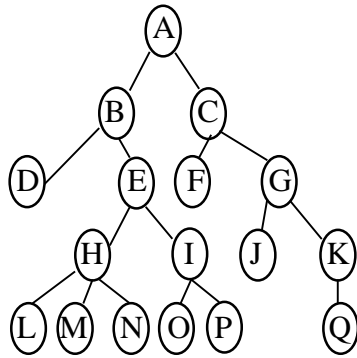
- N.B: 1. Question.No.1 is compulsory.  
2. Attempt any **three** out of remaining five.

- Q.1 A) Give the comparison of DFS, BFS, Iterative deeping and Bidirectional search. 04  
B) Solve the given Cryptarithmic puzzle 04
- $$\begin{array}{r} \text{T W O} \\ + \text{T W O} \\ \hline \text{F O U R} \end{array}$$
- C) Explain modus ponen with suitable example 04  
D) Draw and Explain general model of Learning Agent. 04  
E) Explain the Limitation of propositional logic with suitable example. 04
- Q.2 A) Explain Hill climbing and simulated Annealing with suitable example. 10  
B) Explain Goal based and utility based agent with block diagram 10
- Q.3 A) Consider the given game tree. Apply  $\alpha - \beta$  pruning where  $\square$ - max node,  $\circ$ - min node. 10



- B) Explain Rote learning and Inductive learning with suitable examples. 10
- Q.4 a) Consider the following sentence 10  
i) Mammals drink milk  
ii) Man is mortal  
iii) Man is Mammal  
iv) Tom is Man
- Prove that Tom is mortal using modus ponen and Resolution
- b) Draw and explain the expert system Architecture. 10

Q.5 A) Consider the given tree, apply breadth first search algorithm and also write the order in which 10 nodes are expanded.



B) Write the Planning algorithm for spare tyre problem. 10

Q.6 Write the short note an **any four**. 20

- A) Wumpus world environment
- B) SMA\* algorithm
- C) Forward chaining and Backward chaining
- D) Bayes Theorem and conditional probability
- E) Supervised and Unsupervised learning.

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Time: 3 hours

Marks: 80

**Q1 is compulsory Attempt any 3 Out of 5****Q.1****[20]**

- a) "Cloud Computing", what do you understand by this term? How this is different from cluster computing, grid computing, utility computing and service oriented computing.
- b) Explain the need of Virtualization in the Context of Cloud Computing. Compare type 1 and type 2 Virtualization.

**Q.2****[20]**

- a) Explain the architecture of Eucalyptus Cloud with its mode of operation
- b) Explain IaaS, PaaS, SaaS with example.

**Q.3****[20]**

- a) Explain Amazon's NOSQL Database services.
- b) Explain adoption of public cloud by SMBs

**Q.4****[20]**

- a) Discuss the questions that Enterprise must ask Cloud vendor.
- b) List the implementation level of Virtualization

**Q.5****[20]**

- a) What is the managed Private Cloud? Compare on premises private cloud, managed private cloud, public and hybrid Cloud
- b) What are risks associated with Cloud computing

**Q.6 write a short note [any 4]****[20]**

- a) Federated Cloud
- b) Cloud Storage Gateways
- c) AAA
- d) Mobile Cloud Computing
- e) Cloud Migration Techniques

N. B. i. Q. 1. Compulsory.

- ii. Attempt any three from the remaining,
- v. Assume suitable data.

- Q1 One of the Municipal Corporation wants to take the offline Tender bidding activity like vendor search, floating the tender, allocation of the tender, execution of the contract and billing etc. online. Develop a business plan based on the following guidelines: (20)
- i. Identify the business model.
  - ii. Develop the strategic plan based on Strategic Objectives, Strategic definition, SCM plan
  - iii. Develop few webpages demonstrating the activities.
  - iv. Organizational structure
  - v. Hardware and Software requirement
- Q2 a) Discuss any two tools to secure channel of communication in an e-commerce environment. (10)
- b) Discuss the CRM strategy for acquisition and retention of the customer need to be adopted by a Travel Agency to improve the profit margin. (10)
- Q3 a) List the e-payment modes available in e-commerce. Explain any two of them in detail. (10)
- b) Explain with example the components of SOSTAC framework to promote the product. (10)
- Q4 Attempt *any four*.
- a) Differentiate between the buy-side and sell-side SCM. (05)
  - b) Discuss any one revenue model with one example. (05)
  - c) Discuss the 7 P's of the marketing strategies with one example each. (05)
  - d) Explain the SLEPT framework. (05)
  - e) Explain the effect of Porter's five forces on e-business. (05)
- Q5 a) Explain with examples the multi-channel marketplace model. (10)
- b) Justify with example "e-business strategy model is dynamic and not static". (10)
- Q6 Write a short note (Any 2) (20)
- a) Discuss 7s Strategic framework for change management.
  - b) Comment on the drives, risks and impact of e-procurement.
  - c) Draw a flow process chart showing the main operations performed by users on any of the e-commerce web-site.