

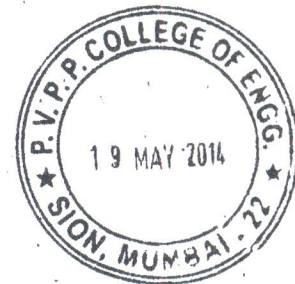
QP Code : MV-19974

(3 Hours)

[Total Marks : 100

- N.B. :**
- (1) Question no 1 is compulsory.
 - (2) Solve any four questions out of the remaining.
 - (3) Assume suitable data wherever required.

1. (a) Differentiate between e commerce and e business. Also state the advantages and disadvantages of e commerce. 10
(b) Explain SET protocol for electronic payments. 10
2. (a) State and explain electronic data Interchange (EDI) in detail. 10
(b) Define CRM and hence explain its architecture in detail. 10
3. (a) Explain different types of web based auctions and explain any one in detail 10
(b) Explain the important factors to be considered in server side programming. 10
4. (a) Explain what is meant by value chain and hence explain the various types of value chain that can be applied to an organization. 10
(b) Explain any three types of e- business models used . 10
5. (a) Explain WAP architecture in detail. 10
(b) For launching a new product on the web, explain the strategies for sales and promotions using e commerce site. 10
6. (a) Explain the complete cycle of credit card transactions. 10
(b) Explain the different security measures that can be applied to protect a private intranet from public internet. Further explain the different types of firewalls that can be useful for an ecommerce website. 10
7. Write short notes on (any two):- 20
 - (a) REST
 - (b) Virtual communities
 - (c) Mobile Agents.



Con. 10547-14.

QP Code : MV-20045

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question no. 1 is compulsory.
 (2) Attempt any four questions out of remaining six questions.
 (3) Assume suitable data wherever necessary and state them clearly.

1. (a) Laplacian is not good edge detector. Justify. 5
 (b) Discuss the properties of Region of Convergence. 5
 (c) Convolution in one domain leads to multiplication in other domain. 5
 (d) Walsh transform is nothing but sequence Orderd Hadamard Transform Matrix Justify. 5
2. (a) Construct improved gray scale quantization code for given level data set. 10
 {100, 110, 124, 124, 130, 200, 210}
 (b) Find the following sequences are periodic or not. If yes, find the fundametal time period. 10
 (i) $x_1(n) = 3\sin(0.01\pi n) + 4\cos(10\pi n)$
 (ii) $x_2(n) = \cos(0.01\pi n)$
3. (a) Determine the system function and unit sample response of the given system described by following difference equation : 10

$$y(n) = \frac{1}{4}y(n-2) + \frac{1}{2}y(n-1) + x(n)$$

 (b) Find cross-correlation between given signals. 5
 $x(n) = \{1, 0, 1, 2\}$
 $y(n) = \{1, 2, 3, 4\}$
 (c) Find auto-correlation of following signal 5
 $x(n) = \{1, 1, 2, 3\}$
4. (a) Compute DFT of the given image using DIT-FFT technique 10
- | | | | |
|---|---|---|---|
| 0 | 1 | 2 | 1 |
| 1 | 2 | 3 | 2 |
| 2 | 3 | 4 | 3 |
| 1 | 2 | 3 | 2 |
- (b) Explain the process of image segmentation using different methods. 10

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5. (a) Specify DCT basis functions and construct transform matrix for an image. 10
 (b) Obtain the digital negative of the following 8 bits per pixel image.

121	205	217	156	151
139	127	157	117	125
252	117	236	138	142
227	182	178	197	242
201	106	119	251	240

6. (a) Perform histogram equalization on the given image transform. 10

Gray Level	0	1	2	3	4	5	6	7
Number of Pixels	70	100	40	80	60	40	08	02

- (b) Write 8 x 8 Walsh transform matrix and draw its signal flow graph. 10

7. Write short notes on (any four) : - 20

- Hough Transform
- Wavelet Transform
- Classify and define discrete time systems
- Homomorphic filter
- State and prove convolution property of Z-transform.



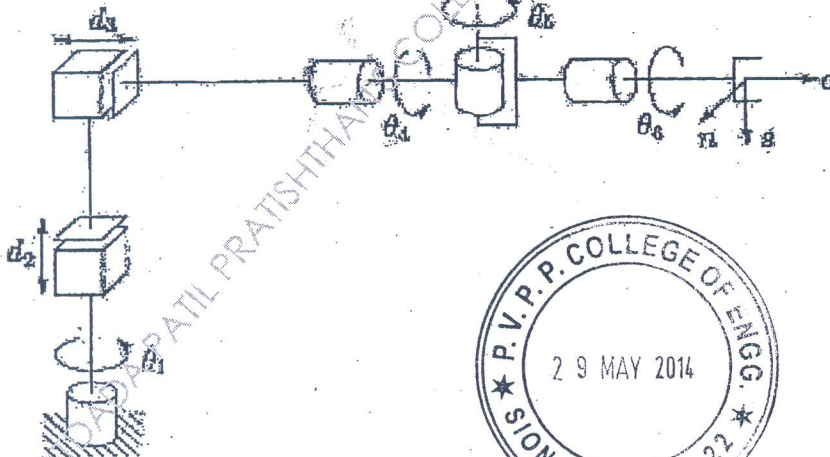
QP Code : MV-20102

(3 Hours)

[Total Marks :100

- N.B. :** (1) Question No. 1. is compulsory.
 (2) Answer any four questions from remaining questions.
 (3) Assume suitable data if necessary.
 (4) Figures to the right indicate full marks.

1. (a) Describe robot workspace. 5
 (b) Explain homogeneous transformation matrix. 5
 (c) Discuss the heuristic function for 8-puzzle problem. 5
 (d) Discuss structure of learning agent. 5
2. (a) Explain A* algorithm with example. 10
 (b) Explain breadth first algorithm. 10
3. (a) Explain resolution refutation using suitable example. 10
 (b) Explain backward chaining giving suitable example. 10
4. (a) Discuss the application of decision tree for restaurant example. 10
 (b) Why uncertainty occurs in AI systems? How probability theory can be applied for toothache problem? 10
5. (c) Using DH notation, write transformation matrix for following robot: 15



- (d) Explain different types of robots. 5

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2.

QP Code : MV-20102

6. (a) Discuss various position sensors used in robots.
(b) Discuss partial order planning giving suitable example.

10

10

7. Write short note on

- (a) Limitations of Hill-Climbing algorithm
(b) Predicate Logic
(c) Properties of environment
(d) Admissibility of A*

5

5

5

5



Con. 12253-14.



mobile Computing

QP Code : MV- 20172

(3 Hours)

[Total Marks : 100

Note:

1. Question No. 1 is compulsory.
2. Attempt any four questions out of remaining questions.
3. Make suitable assumptions whenever necessary.

Q.1:

- a) What is Spread Spectrum? [5]
- b) Compare between IEEE 801.11 and HiperLAN2 . [5]
- c) What is frequency reuse concept in cellular communication? [5]
- d) Compare 2G and 3G mobile communication systems. [5]

Q.2:

- a) Explain the GSM protocol architecture. [10]
- b) Describe the call initiation and call termination procedure in GSM systems. [10]

Q.3:

- a) Explain IEEE 802.11 MAC frame format in detail. [10]
- b) Describe tunneling and encapsulation in Mobile IP . [10]

Q.4:

- a) With respect to Bluetooth protocol explain piconet and scatternet [10]
- b) Explain merits and demerits of snooping TCP and indirect TCP? [10]

Q.5:

- a) Describe WAP transport layer security [10]
- B) Compare between MEO and GEO satellite systems. [10]

Q.6:

- a) Describe TETRA system architecture. [10]
- b) Compare between WCDMA and CDMA2000 [10]

Q.7: Write Short Notes on following: [20]

- a) Wireless Local Loop
- b) RFID
- c) Wireless ATM
- d) Mobile agents