

Con. 9376-13.

GS-5752

(REVISED COURSE)

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is compulsory.
(2) Attempt any **four** questions from remaining **six** questions.
(3) Assume suitable **data** if required.

1. (a) Explain different Birthday problems. 5
(b) What are the key principles of security ? 5
(c) Compare and contrast SHA-T and MD-5 5
(d) Explain the Honey Pots. 5
2. (a) How flaw in TCP/IP can cause operating systems to become Vulnerable ? Also Explain how Kerberos are used for user authentication in windows. 10
(b) For the given values $p = 19$, $q = 23$ and $e = 3$ find n , $\phi(n)$ and d using RSA algorithm. 10
3. (a) What is Buffer overflow and Incomplete mediation in Software Security ? 10
(b) Explain one-time initialization process and processes in each round of Advanced Encryption Standard. 10
4. (a) What is a denial of service attack ? What are the way in which an attacker can mount a DOS attack on the system ? 10
(b) Compare Packet Sniffing and Packet Spoofing. Explain the session hijacking attack. 10
5. (a) Explain Multiple level Security Model. Also explain Multilateral Security. 10
(b) What is Malware ? Explain Salami and Linearization attacks. 10
6. (a) Explain software Reverse Engineering. Also Explain Digital Rights Management. 10
(b) Describe the different types of IDS and their limitations. 10
7. Write short notes on (any **four**) :— 20
 - (a) CAPTCHA
 - (b) Access Control Matrix
 - (c) Covert Channel
 - (d) Firewall
 - (e) RC4.

BE (Comp) SEM VII (Rev) 14/5/13
Robotics & AI
May 2013

D : PH (April Exam) 213

Con. 8341-13.

(REVISED COURSE)

GS-5419

(3 Hours)

[Total Marks : 100

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

(2) Answer any **four** questions out of remaining six questions.

(3) Assume suitable **data** wherever **necessary**.

1. (a) Find the inverse kinematic solution of 4-axis SCARA Robot. 10
(b) Explain utility-based agent with the help of neat diagram. 10
 2. (a) Write a note on Reactive Behavioural System. 10
(b) Describe the following sensors-- 10
 - (i) Sonar
 - (ii) Infrared.
 3. (a) Compare different uninformed search strategies. 10
(b) Explain A* Algorithm. What is the drawback of A* ? Also shows that A* is optimally efficient. 10
 4. (a) Describe Hill Climbing Algorithm. What are its limitations ? 10
(b) Explain various method of knowledge representation with example. 10
 5. (a) Define Reach and stroke, Degree of Freedom and Accuracy. 10
(b) Define partial order planner. Explain STRIPS representation of planning problem. 10
 6. (a) Explain the learning Agent with the help of suitable diagram. 10
(b) What are PEAS descriptors ? Give PEAS descriptor for-- 10
 - (i) part-picking robot
 - (ii) WUMPUS WORLD.
 7. Write short note on following :- 20
 - (a) Belief Network
 - (b) PROLOG
 - (c) Crypt Arithmetic
 - (d) GPS.
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db/13

VT-F.H.Exam. April(1)-13-138

Con. 7594-13.

B.E (CMPN) in VIT (R)
Digital Signal Image
Processing GS-5302
(REVISED COURSE)

(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**.

1. (a) Explain signals and systems with the help of suitable examples. Give applications of signals and systems. 5
(b) Find Z transform of the following finite duration signal and state its ROC :- 5
 $X(n) = \{ 1, 2, 5, 7, 0, 1 \}$
(c) Given $X(n) = \{ 0, 1, 2, 3 \}$. Find $X(k)$ using DIT - FFT Algorithm. 5
(d) Find CONVOLUTION of following signals :- 5
 $X(n) = \{ 2, 1, 3, 5 \}$ and $h(n) = \{ 0, 1, 2, 4 \}$.

2. (a) Determine the system function and unit sample response of the system given 10
by Difference equation :

$$Y(n) = \frac{1}{2} Y(n-1) + 2 X(n)$$

- (b) Perform Histogram Equalization for the following. Obtain a plot of original as 10
well as Equalized Histogram.

Grey level	0	1	2	3	4	5	6	7
No. of Pixels	100	90	50	20	0	0	0	0

3. (a) Given $X(n) = \{ 0, 1, 2, 3, 4, 5, 6, 7 \}$. Find $X(k)$ using DIT-FFT algorithm. 10
(b) Compute 2D DFT of given Image using DIT-FFT algorithm. 10

$$f(x,y) = \begin{bmatrix} 1 & 2 & 3 & 2 \\ 4 & 3 & 2 & 1 \\ 4 & 3 & 2 & 4 \\ 3 & 2 & 1 & 4 \end{bmatrix}$$

4. (a) Explain in details Enhancement techniques in spatial domain used for images. 10
(b) What is HADAMARD Transform ? Write a 4 x 4 Hadamard matrix and its 10
applications.

5. (a) What is segmentation ? Explain the different methods of image segmentation. 10
(b) Explain image Restoration and its applications. 10

6. (a) What do you understand by sampling and quantization with respect to Digital Image Processing ? How will you convert an Analog image into a Digital Image ? 10
(b) Name and explain different types of Data Redundancies associated with Digital Image. 20

7. Write short notes on (any two) :-

- (a) Wavelet Transform (b) Properties of Fourier Transform
(c) KL Transform (d) Discrete Cosine Transform.

COMP Sem VII Rev 21/5/13

mobile computing

Con. 8890-13.

GS-5539

(REVISED COURSE)

(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** whenever **necessary**.

1. (a) What do you mean by Near and far terminals problem ? 5
(b) Explain VOIP service for Mobile Networks. 5
(c) What is the use of HLR & VLR registers in Mobile computing ? 5
(d) Explain different types of Spread Spectrum technique used in cellular system. 5
2. (a) Draw a neat diagram of GPRS system architecture and explain with different types of interfaces. 10
(b) Explain protocol architecture of 802.11. 10
3. (a) Explain I-TCP and M-TCP in detail. 10
(b) Explain wireless datagram protocol. 10
4. (a) Explain various protocols of MANET Routing protocols. 10
(b) Describe the Mobile satellite system (LEO & GEO). 10
5. (a) Explain Handoff. Management technique used in cellular system. 10
(b) Explain Motivation of WATM also explain WATM generic reference Model ? 10
6. (a) Explain UTRA FDD TDD mode in detail ? 10
(b) Compare 802.11 and 802.15. 10
7. Write short notes on any **four** :- 20
 - (a) RFID
 - (b) M-commerce
 - (c) Wireless Sensor Network
 - (d) H.323 Network
 - (e) WML script.

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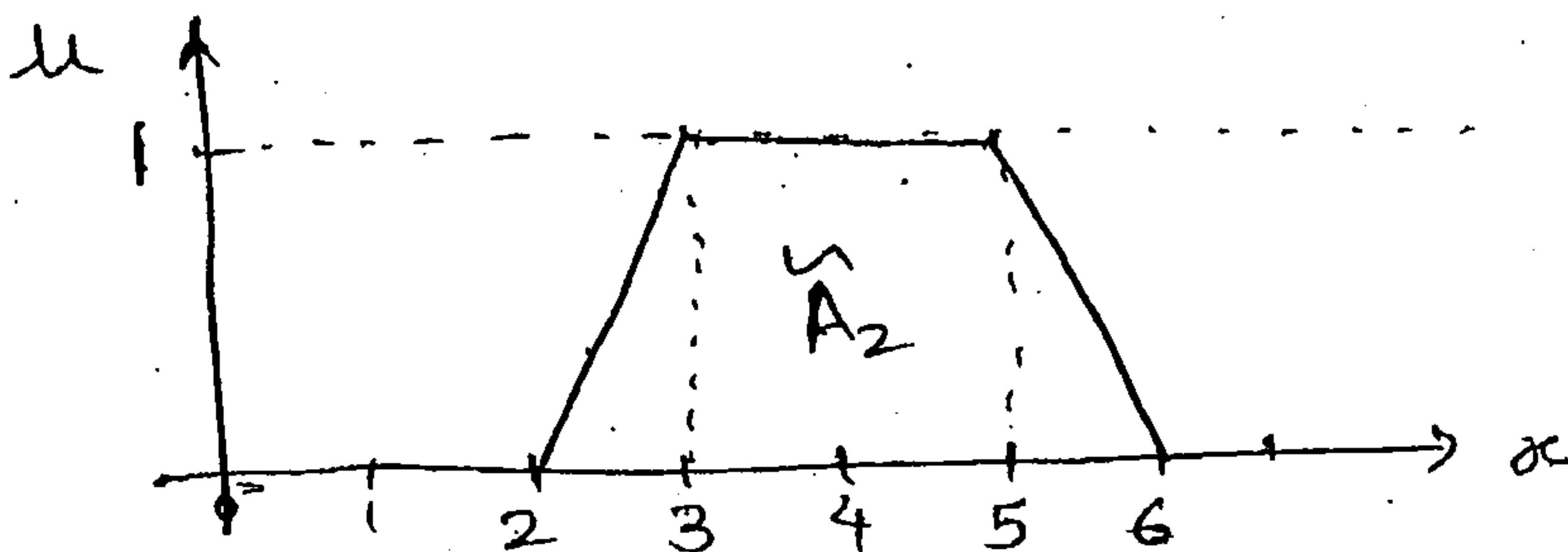
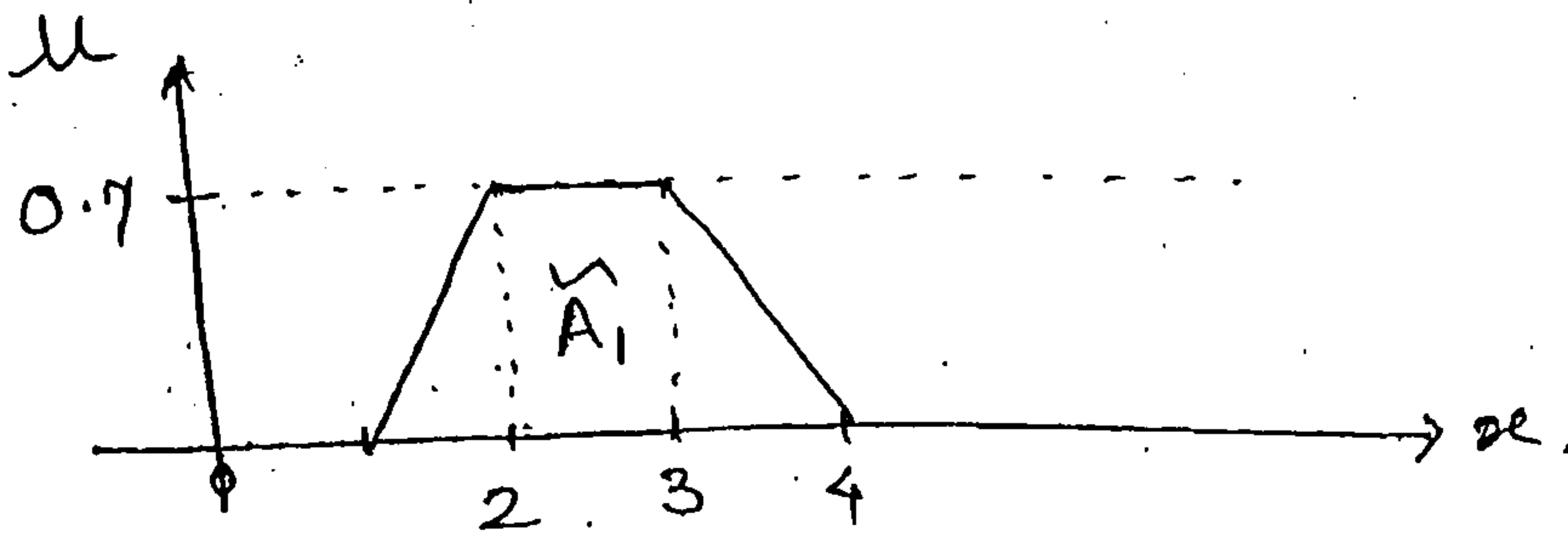
GS-6157

(REVISED COURSE)

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No.1 is compulsory.
 (2) Attempt any four questions out of the remaining questions.
 (3) Figures to the right indicate full marks.
1. (a) Explain cylindrical extension and projection operations on fuzzy relation with example. 5
 (b) A neuron with 3 inputs has the weight vector $w = [0.1 \ 0.3 \ -0.2]$. The activation function is binary sigmoidal activation function. If input vector is $[0.8 \ 0.6 \ 0.4]$ then find the output of neuron. 5
 (c) What are the various types of Mutation techniques. 5
 (d) Model the following as fuzzy set using trapezoidal membership function. 5
 "Middle age "
 2. (a) What is supervised and unsupervised learning ? Compare different learning rules. 10
 (b) Explain the Radial Basis function neural network for the solution of XOR. 10
 3. (a) Explain Kohonen's self organizing neural network. 10
 (b) For the given membership function as shown in figure below, determine the defuzzified output value by any 2 methods. 10



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4. (a) Explain the operations of genetic programming with help of flowchart. **10**
(b) Compare Mamdani and Sugeno fuzzy models. **10**
5. Design fuzzy logic controller for water purification plant. Assume the grade of water and temperature of water as the inputs and the required amount of purifier as the output. Use three descriptors for input and output variables. Derive set of rules for control the action and defuzzification. The design should be supported by figures. Clearly indicate that if water temperature is low and grade of water is low, then amount of purifier required is large. **20**
6. (a) Explain Travelling salesperson problem using simulated Annealing. **10**
(b) Explain Error back propagation training Algorithm (EBPTA). **10**
7. (a) Write short notes on any two :- **20**
(a) Character recognition using neural network
(b) Learning vector quantization
(c) Derivative based optimization.
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