

8. Write short notes on any two of the following :

$$7 \times 2 = 14$$

- (a) Uniform and Non-uniform quantization
  - (b) Perspective Projection
  - (c) Band pass filter
  - (d) Edge Linking
  - (e) Boundary Detection
- 

PDF	CDF	CDF $\lambda^7$	App Value
0	0	0	0
0	0	0	0
0	0	0	0
0.24	0.24	1.68	2
0.56	0.8	5.6	6
0.2	1	7	7
0	1	7	7
0	1	7	7

QD - 4/2 (200)

(4)

UL(6) — Image  
Process

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UL(6) — Image  
Process.

2021(A)New

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in  
their own words as far as practicable.

The figures in the margin indicate full marks.

Answer any five questions.

1. (a) With the help of a neat diagram explain the components of general purpose image processing system. 7
- (b) Explain the concept of image sampling and quantization with a proper example. 7
2. (a) Explain the concept of brightness adaption and discrimination in image processing. 7
- (b) Explain the smoothing of images in frequency domain using ideal, Butterworth and Gaussian Low pass filter. 7

QD - 4/2

(Turn over)

3. (a) Explain the process of brightness adaption and discrimination in image processing.

7

- (b) Explain the following terms :

7

(i) False contouring

(ii) Checker board effect

(iii) Neighbors of Pixel

(iv) Distance measure

4. (a) Perform histogram equalization of  $5 \times 5$  image.

7

Gray level	Number of Pixels
0	0
1	0
2	0
3	6
4	14
5	5
6	0
7	0

- (b) Explain with the block diagram, the basic steps for image filtering in frequency domain.

7

5. (a) Explain Adaptive filtering method of restoring images. List its advantages.

7

- (b) Explain erosion and dilation operations used for Morphological processing.

7

6. (a) Explain the basic model of image restoration process. Explain any four important noise probability density function.

7

- (b) Explain, in brief, the properties of two dimensional Fourier Transform.

7

7. (a) Explain Wiener filtering in image processing.

7

- (b) Draw the block diagram for converting Gray level intensity to color transformation and also explain it.

7

## 2021(A)New

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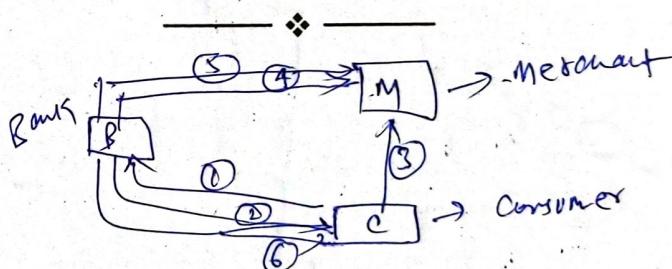
Answer any five questions.

1. (a) Analyze Electronic data Interchange and its functionalities with suitable diagram. 7  
(b) What is e-Commerce ? Hence explain the e-Commerce business model. 7
  
2. (a) How e-Commerce transactions are taking place ? Draw the diagram for the above steps. 7  
(b) What do you mean by On-line payment ? Hence explain the role of a payment gateway for secure transaction. 7

3. (a) What do you mean by Inter Organizational e-Commerce ? 7
- (b) What are the e-Commerce Opportunities ? Explain with neat diagram. 7
4. (a) What do you mean by a web site ? How the web pages are developed using VB, ASP and SQL for the development of the e-Commerce Sites ? 7
- (b) What is a Merchant Account ? How transactions take place in such types of accounts ? Explain diagrammatically. 7
5. (a) How can one improve loyalty and repeat buyers to raise retention ? 7
- (b) Explain the technological standards of e-Commerce ? 7
6. (a) Explain the legal issues associated with e-Commerce ? What are the role of Government ? Explain. 7
- (b) Explain the different types of protocols used during for secure messaging. 7

7. (a) Describe public and private key cryptology. Explain the advantages and disadvantages with each other. 7
- (b) What do you mean by Consumer trade transaction ? Describe the steps in secure internet banking. 7
8. Write short notes on any two of the following : 7x2 = 14

- (a) Internet Security  
 (b) Supply Chain Management  
 (c) Service Provider Liabilities  
 (d) Virtual Auctions



## 2021(A)New

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in  
their own words as far as practicable.

The figures in the margin indicate full marks.

Answer any five questions.

1. (a) What is cloud computing ? Discuss the emergence of cloud computing. 7

(b) Classify the different types of cloud. Why should one prefer the public clouds over private cloud ? 7

2. (a) What is infrastructure as a service ? Explain Amazon EC2 in details. 7

(b) Mention advantage and disadvantage of cloud computing model as compared to

- conventional computing with proper justification. 7
3. (a) What do you mean by platform as a service in cloud ? List all the companies which provide these services. 7
- (b) What risks are associated with cloud computing ? Explain multi-tenancy with respect to different cloud environment. 7
4. (a) Explain virtualization in cloud. Discuss storage virtualization. 7
- (b) Differentiate type – I and type – II hypervisor. 7
5. (a) Define SOA. How SOA helps to promote cloud computing ? 7
- (b) What is Data Center ? Explain infrastructural requirement for establishing modern data center. 7
6. (a) Explain how data security is ensured in cloud computing ? 7
- (b) Explain virtual machine. Why we need VM migration in cloud computing ? 7
7. (a) What is MAAS ? Explain MAAS in brief. 7
- (b) Discuss the different types of hardware virtualization. Compare them with their performance. 7
8. (a) Define data breach. Explain IAM in brief. 7
- (b) What are the different problems of using traditional cloud via mobile phones ? How these problems can be resolved ? 7

\* data loss  
\* data breach  
\* Due to distributed systems, network can be affected any time.

- (b) What is meant by membership function ?  
Explain, in detail, various membership  
function of fuzzy logic systems. 6
7. (a) Discuss, in details, operations and  
properties of fuzzy sets. Why law of  
contradiction and law of exclusive middle  
are violated in fuzzy set theory under the  
standard fuzzy set operations. What is the  
significance of this ? 6
- (b) Explain the framework of a fuzzy expert  
system with a diagram. 8
8. Write short notes on any two of the following :  
 $7 \times 2 = 14$
- (a) Reinforcement learning  
(b) Defuzzification techniques  
(c) Ant colony based optimization  
(d) Boltzman machine
- 

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## 2021(A)New

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in  
their own words as far as practicable.

The figures in the margin indicate full marks.

Answer any five questions.

1. (a) Find the suitable soft computing techniques  
for the following real time problems : 8
- (i) Predicting housing prices
  - (ii) Analyzing sentiment
  - (iii) Finding similar documents
  - (iv) Recommending products
- (b) Explain Max-Min composition and Max  
product composition with an example. 6

2. (a) State the properties of Genetic Neuro Hybrid System. Draw the block diagram of Genetic Neuro Hybrid System. 6
- (b) Illustrate the different steps involved in the training algorithm of Perceptron. 4
- (c) Implement ANDNOT function using McCulloch-Pitts neuron (use binary data representation). 4
3. (a) Develop an FIS Mamdani model for controlling temperature in an air conditioner. 6
- (b) What is linear separability? Explain with an example why single layer perception is not capable of solving Linearly Inseparable problems. 8
4. (a) What is soft computing? How does it differ from hard computing? In what kind of problems of soft computing is a better choice over other traditional computing techniques? 7

- (b) Explain the different types of mutation function in Genetic algorithm? 7
5. (a) Consider two fuzzy sets : 8
- $$A = \left\{ \frac{0.2}{0} + \frac{0.3}{1} + \frac{1}{2} + \frac{0.1}{3} + \frac{0.5}{4} \right\}$$
- $$B = \left\{ \frac{0.1}{0} + \frac{0.25}{1} + \frac{0.9}{2} + \frac{0.7}{3} + \frac{0.3}{4} + \frac{0.2}{5} \right\}$$
- Find the following :
- (i) Algebraic sum
  - (ii) Algebraic product
  - (iii) Bounded sum
  - (iv) Bounded Difference
- (b) Explain back propagation algorithm and factors that may affect the Back propagation neural network. 6
6. (a) Differentiate the following :  $4 \times 2 = 8$
- (i) Competitive learning network and Kohonen self-organizing network.
  - (ii) Biological Neural Network and Artificial Neural Network.

minimum frame size in bytes to achieve a link utilization of at least 50%. 8

(b) Describe the methods of Unicasting, Broadcasting and Multicasting. 6

8. Write short notes on any **two** the following :

$$7 \times 2 = 14$$

- (a) Multiplexing
- (b) Routing Protocol
- (c) Switches and Hubs
- (d) TCP vs. UDP
- (e) Piggybacking



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## 2021(A)New

Time : 3 hours

Full Marks : 70

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

*Answer any five questions.*

1. (a) Draw the OSI model. State the responsibilities of each layer. 10

(b) Write the advantages and disadvantages of Mesh and Ring topologies. 4

2. (a) The message 11001001 is to be transmitted using the CRC polynomial  $x^3 + 1$  to protect it from errors. Write the transmitted message. 8

(b) Define bit rate and baud rate. An analog signal has a bit rate of 8000 bps and a baud

rate of 1000 baud. How many data elements are carried by each signal element ? How many signal elements do we need ?

6

3. (a) How Slotted ALOHA protocol differs from pure ALOHA ? Write the vulnerable time and maximum throughput for both the protocols.

8

- (b) Why CSMA/CD protocol is better than CSMA protocol ? How we decide minimum frame size in case of CSMA/CD ? Explain with a diagram.

6

4. (a) What are the significance of Gateway and Router in computer network ? Write the different type of Gateway and Routers.

6

- (b) Explain how token ring technology is used to design LAN ? In a token ring network the transmission speed is  $10^7$  bps and the propagation speed is 200 meters / microsecond. How much length of cable is equivalent to the 1-bit delay in this network ?

$$P = 18.21$$

$$S = 36.41$$

PO - 16/2

(2)

g<sup>2</sup>

Contd.

8/6

5. (a) How TCP connection is established in transport layer ? Describe with a diagram.

- (b) A block of addresses is granted to a small organization. One of the addresses is 205.16.37.39 / 28. What are the first address, last address and total number of addresses in the block.

6

6. (a) What are the different techniques to improve Quality of Service ? Explain Leaky Bucket algorithm for fixed size and variable length packets.

8

- (b) How DHCP protocol provides static and dynamic address allocation ?

6

7. (a) Suppose that the stop-and-wait protocol is used on a link with a bit rate of 64 kilobits per second and 20 ms propagation delay. Assume that the transmission time for the acknowledgement and the processing time at nodes are negligible. Then find the

PO - 16/2

(3)

(Turn over)

## **2021(A)New**

**Time : 3 hours**

**Full Marks : 70**

*Candidates are required to give their answers in their own words as far as practicable.*

*The questions are of equal value.*

**Answer any five questions.**

1. (a) What do you mean by an entrepreneur ?  
Write various qualities of an entrepreneur.

(b) Explain entrepreneurship with suitable example.
2. (a) Differentiate between an Entrepreneur and manager.

(b) Differentiate between Entrepreneurship and Intrapreneurship.
3. (a) Discuss the role of entrepreneurship in economic development of a country.

(b) Enumerate various types of entrepreneurs.

4. (a) Explain various factors for entrepreneurial environment.  
(b) Explain various models of entrepreneurial development.
5. (a) What is the purpose of a business plan ? What are the contents of a business plan ?  
(b) Explain the procedure for setting up an enterprise.
6. (a) Explain marketing strategies for a business plan.  
(b) Explain managing human resources for a business plan.
7. (a) What do you mean by business ownership ?  
(b) Discuss various types of business ownership.
8. Write short notes on any three of the following :  
(a) Rural entrepreneurship in India  
(b) Woman entrepreneurship in India  
(c) Financing a business plan  
(d) Intellectual property management  
(e) Role of technology in an entrepreneurship