

PGIVS-N 1530 A-18
M.Sc. IVth - Semester Examination
COMPUTER SCIENCE
(Digital Image Processing (DIP))
Paper : SCT 4.5
(New)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) *Section A is compulsory.*
- 2) *Answer any five questions from Section B.*

Section - A

1. Answer the following : **(10×2=20)**
- a) What is Digital Image?
 - b) Define convolution process.
 - c) What is Image Sampling?
 - d) What is Image Enhancement?
 - e) What are smoothing? Explain in brief.
 - f) What is Non - Linear Operations?
 - g) Define Image degradation.
 - h) What is image segmentation? Explain in brief.
 - i) What is Intensity Transformation?
 - j) Define 3×3 and 8×8 Connectivity?

Section - B

2. a) Explain Fundamental Steps in Digital Image Processing. **(6)**
- b) List some applications that uses digital image processing. **(6)**
3. a) Explain Gray Level Transformation. **(6)**
- b) Describe the process of smoothing and sharpening in frequency domain. **(6)**

4. a) Perform histogram stretching for the following Image.
- | | | | | | | | | | | |
|---------------|---|-----|----|----|----|---|---|---|---|-----|
| Gray Level | : | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| Nor of pixels | : | 100 | 90 | 85 | 70 | 0 | 0 | 0 | 0 | (6) |
- b) Explain error free compression and Lossy compression. (6)
5. a) Discuss the basic steps in Discrete Fourier transform. (6)
- b) Explain constrained least square filtering. (6)
6. a) Describe Region Oriented Segmentation. (6)
- b) Explain Edge linking and boundary detection. (6)
7. a) Discuss Error free comparison. (6)
- b) Explain Linear Position - invariant degradation. (6)
8. Write short note on any two of the following : (2×6=12)
- Geometric Mean filter.
 - Homomorphic filtering.
 - Distance Measure.
 - Structural Methods.

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PGIVS-N 1528 A-18
M.Sc. IVth Semester Examination
COMPUTER SCIENCE
(Software Engineering)
Paper : HCT 4.2
(New)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) *Section A is compulsory.*
- 2) *Answer any five questions from Section B.*

Section - A

1. Answer the following questions. (10×2=20)
- a) Define software engineering paradigm.
 - b) What is the advantage of software prototyping?
 - c) Define Software Crisis.
 - d) Why metrics are required in Software Engineering?
 - e) How can we evaluate a design method to determine if it will lead to efficient modularity?
 - f) Define Software quality.
 - g) What are the drawbacks of spiral model?
 - h) What are the benefits of modular software designing?
 - i) What are the principles that guide analysis work?
 - j) What is software engineering? Why the cost of a software so high?

Section - B

2. a) What are the attributes of good software? Explain the key challenges facing software engineering. (6)
b) Discuss different phases of Rapid Application Development (RAD) Model. (6)
3. a) What is software process? With a neat diagram, explain the software design process activities, in detail. (6)
b) Differentiate between direct and indirect software measures. (6)
4. a) Explain the principles that guide analysis of software. (6)
b) Discuss the problems with using natural languages for requirements specifications. (6)
5. a) Explain the structure analysis model with a neat diagram. (6)
b) Mention the weaknesses of structured methods when used to produce system models. (6)
6. a) Define architectural design. With an example, describe the repository model and give its advantages and disadvantages. (6)
b) Explain with figure, the data flow model of an invoice processing system. (6)
7. a) Explain how test cases are derived using a specific example. (6)
b) Explain how white box testing is different from black box testing. (6)
8. Write short note on any two (2×6=12)
 - a) Prototyping Model.
 - b) Class diagram.
 - c) Software Prototyping.
 - d) Static and dynamic models.

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PGIVS-N 1529 A-18
M.Sc. IVth Semester Examination
COMPUTER SCIENCE
(Artificial Intelligence)
Paper : SCT 4.1
(New)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) *Section A is compulsory.*
- 2) *Answer any five questions from Section B.*

SECTION - A

1. Answer the following questions. **(10×2=20)**
- a) What is common sense reasoning?
 - b) What are differences between simulated annealing and hill climbing procedure?
 - c) List issues in knowledge representation.
 - d) Define declarative knowledge.
 - e) How to input characters in Prolog?
 - f) What is nonmonotonic reasoning?
 - g) Define semantic net with an example.
 - h) What are the steps in natural language understanding process?
 - i) Define domain knowledge.
 - j) What are expert system tools?

SECTION - B

2. a) Discuss AI technique with an example. **(6)**
- b) Describe production system characteristics. **(6)**

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3. a) Write algorithm for steepest Ascent hill climbing? Demonstrate it with an example. (6)
b) Explain constraint satisfaction search procedure with example. (6)
4. a) What is inheritable knowledge? Write property inheritance algorithm. (6)
b) Define resolution. Explain how to convert it to clause form. (6)
5. a) With a program demonstrate representation of objects and relationships using tree and lists. (6)
b) What are truth maintenance systems? Discuss justification based truth maintenance systems. (6)
6. a) What are frames? Describe frames as instances. (6)
b) Explain functioning of parsers with an example. (6)
7. a) Define expert system. List. (6)
b) How to acquire knowledge in expert system? Discuss. (6)
8. Write notes on any two of the following : (2×6=12)
a) Forward and backward chaining.
b) Prolog objects.
c) Discourse & pragmatic processing.
d) MYCIN.
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PGIVS-N 1527 A-18
M.Sc. IVth Semester Examination
COMPUTER SCIENCE
(Internet Working and Web Design) (CBCS)
Paper : HCT - 4.1
(New)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- i) Section - A is compulsory.
- ii) Answer any FIVE questions from Section - B

Section - A

1. Answer the following questions. (10×2=20)
- a) Discuss the concept of virtual networks.
 - b) What is XML? Explain.
 - c) Discuss function in JAVA Scripts.
 - d) List the features of IPV4
 - e) Explain the cookies and how to create it.
 - f) Explain CGI technology.
 - g) What re the different classes of IP address?
 - h) What is Applets? Write any two applications of an Applet
 - i) Define the following Links, Hyperlinks and Anchors?
 - j) Write the functions of DNS name server.

Section - B

2. a) Explain the layering architecture of TCP/IP protocol. (6)
- b) Develop a JavaScript to validate the fields used to accept name and age of person in web page. (6)

3. a) Write the procedure to include audio, video files in HTML pages? Explain with example. (6)
b) Explain the frame format of IPV6 (6)
4. a) Explain various types of Lists in HTML (6)
b) Explain the Table tag attributes in HTML. (6)
5. a) Explain the style layouts with suitable example. (6)
b) How to create forms in JavaScript? Explain with suitable example. (6)
6. a) Discuss the Domain Name system. (6)
b) Discuss JAVA Script programming language and how to create JavaScript Source file. (6)
7. a) Explain fragmentation and reassembly. (6)
b) Explain remote file accessing in networking. (6)
8. Write notes on any two (2×6=12)
 - a) Limitations of HTML
 - b) HTTP
 - c) ARP
 - d) RSS.

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