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PGIVS-O-1530 A-19

M.Sc. IV Semester Degree Examination

COMPUTER SCIENCE

(Digital Image Processing - DTP)

Paper - S.C.T. 4.5

(OLD)

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) Define Resolution.

b) What is meant by masking?

c) Compare spatial and frequency Domain methods.

d) Define noise probability density functions.

e) List the properties of the second derivative around an edge.

f) Define compression ratio.

g) Write the applications of segmentation.

h) Define signature.

i) What is filtering?

j) What are the demerits of chain code?

SECTION-B

2. a) Describe the elements of digital image processing system with a diagram. **(6)**

b) Explain about Aliasing and Moire patterns. **(6)**

3. a) List different transforms used in DIP. Explain the log transform in detail **(6)**

b) What is meant by image subtraction? Discuss various areas of application of image subtraction. **(6)**

4. a) Explain the homomorphic filtering approach for image enhancement. (6)

b) Discuss about Gaussian High Pass and Gaussian Low Pass Filter. (6)

5. a) Explain about Wiener filter used for image restoration. (6)

b) Differentiate between image enhancement and image restoration. (6)

6. a) Explain about the redundancies in a digital image. (6)

b) Explain wavelet coding in lossy compression. (6)

7. a) Explain global processing via Hough transform for the edge linking. (6)

b) Explain how texture can be used for region description. (6)

8. Write notes on any **two** of the following: (2×6=12)

a) Region based segmentation

b) Inverse filtering

c) Neural network

d) Thresholding

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PGIVS-N 1527 A-19

M.Sc. IV Semester Degree Examination

COMPUTER SCIENCE

(Web Design)

Paper - HCT 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 Markup Language?

b) What is meant by HTML frames?

c) List the different image file formats on web.

d) What is Connection - oriented Communication?

e) Define Static web document.

f) Mention the differences between HTML and XML.

g) State Javascript variable naming rules.

h) Define Document Object Model.

i) What is the purpose of the 'qq' operator in Perl.

j) List the three categories of Perl variables.

Section - B

2. a) Explain the Variables in the Web Design environment. **(6)**

b) Describe the Website design principles used to design for users. **(6)**

3. a) Explain Web Typography in detail. **(6)**

b) Write a HTML program to create horizontal and vertical frames. **(6)**

4. a) Describe Client - Server Model of Interaction. (6)

   b) List the differences between stream paradigm and message paradigm in Internet Communication. (6)

5. a) Describe different types of HTTP request. (6)

   b) With a neat diagram explain XSLT Processing. (6)

6. a) Explain Primitive JavaScript datatypes with example. (6)

   b) Illustrate Javascript Comparison Operators. (6)

7. a) Describe the file use specifications. (6)

   b) Explain while and for statements in Perl with example. (6)

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

   a) Architecture browser

   b) Internal and External DTD.

   c) Javascript functions.

   d) References in pearl. **(2×6=12)**

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PGIVS-N 1529 A-19

M.Sc. IV Semester Degree Examination

COMPUTER SCIENCE

(Digital Image Processing)

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) List the applications of image processing which use visible and infrared bands.

b) Define sampling and quantization.

c) How color images are formed?

d) Define histogram equalization.

e) How to compute harmonic mean?

f) What are the color image enhancement techniques?

g) What is degradation? What are its types?

h) What is the purpose of Wiener filter? Give filter expression.

i) What are the basic concepts of watershed segments?

j) Give differences between JPEG and MPEG standards.

Section - B

2. a) Describe the image acquisition process using sensor strips and sensor arrays. **(6)**

b) Define brightness, contrast, hue and saturation. How they are related? **(6)**

3. a) Discuss mathematical model of discrete cosine transformation. **(6)**

b) How to convert an image from RGB to HSI model? Give the conversion expressions. **(6)**

4. a) Perform histogram stretching from 0-7 for the following image information : (6)

Intensity	0	1	2	3	4	5	6	7
No. of pixels	0	0	20	25	31	15	0	0

b) What is directional smoothing? Explain the directional smoothing methods. (6)

5. a) Apply median filters of size 3×3 on the given image segment. For boundary condition only consider pixels within image segment.

14	22	12	36
17	9	18	11
52	65	1	19
31	45	15	39

(6)

b) Derive expression for homomorphic filtering. (6)

6. a) Describe constrained restoration technique. (6)

b) Define different geometric transformations with examples. (6)

7. a) Discuss algorithm for edge linking through Hough transform. (6)

b) Write algorithm for basic thresholding technique. (6)

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

a) SVD

b) Spatial averaging techniques.

c) Lagrange multiplier

d) Vector quantization. (2×6=12)

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PGIVS-N 1528 A-19

M.Sc. IV Semester Degree Examination

COMPUTER SCIENCE

(Problem Solving Using Python)

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) List the various datatypes used in python.

b) How variables can be declared in python?

c) List the various operators used in python.

d) Give the significance of data storage.

e) What are generator comprehension?

f) Define user defined function with syntax.

g) List the packages available in python.

h) What is File handling?

i) What is Method overriding?

j) Define constructor.

Section - B

2. a) Explain the various features of python. **(6)**

b) Explain input and output function with an example. **(6)**

3. a) Define string. Write a program to access a last character from the given string. **(6)**

b) Explain break and continue statement with an example. **(6)**

4. a) Explain list and dictionary with an example. (6)

   b) Briefly explain the operations on tuple. (6)

5. a) Write a program to display Fibonacci sequence using function. (6)

   b) Explain required and default argument with an example. (6)

6. a) Explain how to create and access packages in python. (6)

   b) Explain Exception handling with an example. (6)

7. a) Write a program to display employee information using class. (6)

   b) Explain the classes and objects used in python with an example. (6)

8. Write notes on any two of the following :

   a) Loops

   b) Data formatting.

   c) Built - in Exceptions.

   d) Multiple inheritance. (2×6=12)

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PGIVS-O1527 A-19

M.Sc. IV Semester Degree Examination

COMPUTER SCIENCE

(Internet Working and Web Design)

Paper - HCT 4.1

(Old)

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 Internetwork?

b) Define Prefix and Suffix in IP Addresses.

c) What is fragmentation?

d) List the features of XML.

e) Define Address Resolution.

f) What is XML namespace?

g) Write basic HTML structure.

h) What is the importance of URL in web services.

i) What is the difference between Dynamic and Active Web Document.

j) What is Document Object Model?

Section - B

2. a) With a neat diagram Explain Classes of IP addresses. **(6)**

b) Describe ARP Message delivery and format. **(6)**

3. a) Explain IPV6 Colon Hexadecimal Notation with an example. **(6)**

b) List the characteristics of IPV6. **(6)**

4. a) Explain the process of transfer and representation of Electronic mail. **(6)**

   b) Write a HTML program to create Ordered list of elements. **(6)**

5. a) Explain <img> tag with all its attributes. **(6)**

   b) How to insert audio and video in webpage. **(6)**

6. a) Describe Elements, attributes and Values of XML. **(6)**

   b) How to define XML schema instance, explain with an example. **(6)**

7. a) With a neat diagram explain Client - Server interaction. **(6)**

   b) Explain Control Statements used in JavaScript. **(6)**

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

   a) Internet Architecture.

   b) Web browser

   c) RSS

   d) JavaScript Logical Operators. **(2×6=12)**

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PGIVS-N 1527 A-19

M.Sc. IV Semester Degree Examination

COMPUTER SCIENCE

(Web Design)

Paper - HCT 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 Markup Language?
   b) What is meant by HTML frames?
   c) List the different image file formats on web.
   d) What is Connection - oriented Communication?
   e) Define Static web document.
   f) Mention the differences between HTML and XML.
   g) State Javascript variable naming rules.
   h) Define Document Object Model.
   i) What is the purpose of the 'qq' operator in Perl.
   j) List the three categories of Perl variables.

Section - B

2. a) Explain the Variables in the Web Design environment. (6)
   b) Describe the Website design principles used to design for users. (6)
3. a) Explain Web Typography in detail. (6)
   b) Write a HTML program to create horizontal and vertical frames. (6)

4. a) Describe Client - Server Model of Interaction. (6)

b) List the differences between stream paradigm and message paradigm in Internet Communication. (6)

5. a) Describe different types of HTTP request. (6)

b) With a neat diagram explain XSLT Processing. (6)

6. a) Explain Primitive JavaScript datatypes with example. (6)

b) Illustrate Javascript Comparison Operators. (6)

7. a) Describe the file use specifications. (6)

b) Explain while and for statements in Perl with example. (6)

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

a) Architecture browser

b) Internal and External DTD.

c) Javascript functions.

d) References in pearl. (2×6=12)