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**BCACAC 306**

**Credit Based 'Fifth Semester B.C.A. Degree Examination, Nov./Dec. 2015  
(Old Syllabus) (2013-14 and Earlier Batches)  
IMAGE PROCESSING**

Time : 3 Hours

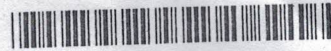
Max. Marks : 100

**Note : Answer any ten questions from Part – A and any one full question from each Unit of Part – B.**

**PART – A**

1. a) What is Digital Image Processing ? (10×2=20)
- b) What are connected components ?
- c) Define variance of intensity with reference to intensity of pixel.
- d) What is normalized histogram ?
- e) What are binary images ? Give an example.
- f) Give any two applications of arithmetic operations on images.
- g) How do we represent a digital image as a 2-D array ?
- h) What are isotropic filters ?
- i) What is image thresholding ?
- j) What are histograms ? Give an example.
- k) Differentiate array and matrix operations.
- l) What is spatial resolution ?

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## PART – B

## UNIT – I

2. a) Briefly describe the method of image acquisition using sensor arrays.  
 b) With the help of a neat diagram explain the fundamental steps in Image Processing.  
 c) Distinguish the following mathematical tools with examples  
 i) Array and Matrix operations  
 ii) Linear and non linear operations (6+6+)
3. a) Sketch briefly the origin or evolution of Digital Image Processing.  
 b) Explain the following with examples  
 i) Connected set  
 ii) Boundary (6+6+)  
 c) Explain different types of pixel adjacency with examples. (6+6+)

## UNIT – II

4. a) What are the different distance measures used in image processing ? Explain.  
 b) What are different affine transformations ? Explain. (6+6+)  
 c) Explain simple image formation model.
5. a) What are the three ways of representing digital images ? Explain.  
 b) What is Image Registration ? Explain. (6+6+)  
 c) Briefly explain different methods of image interpolation.

## UNIT – III

6. a) Explain bit plane slicing and intensity slicing.  
 b) Explain basic set and logical operations on images.  
 c) Give a 3 bit image of size  $64 \times 64$  pixels, whose intensity distribution is as shown below

$r_k$	$R_0 = 0$	$R_1 = 1$	$R_2 = 2$	$R_3 = 3$	$R_4 = 4$	$R_5 = 5$	$R_6 = 6$	$R_7 = 7$
$n_k$	790	1023	850	656	329	245	122	81

Sketch the histogram of the original image and equalized image and also plot the transformation function. (6+6)



7. a) Given

$$Pr(r) = \begin{cases} \frac{2r}{(L-1)^2} & \text{for } 0 \leq r \leq (L-1) \\ 0 & \text{otherwise} \end{cases}$$

Show that  $P_s(s)$  is always uniform independently of the form  $P_r(r)$ .

- b) Explain any two Gray level transformations.
- c) Explain Log Transformations and Power-Law Transformations. (6+6+8)

UNIT - IV

- 8. a) Discuss the implementation of first order derivatives for (non-linear) image sharpening using gradient. (10+2+20)
- b) Differentiate Gray level slicing and Bit plane slicing.
- c) What are order-statistics (non-linear) filters ? Explain. (6+6+8)
- 9. a) Discuss the vector representation of linear filtering.
- b) Explain local histogram processing.
- c) Explain the image sharpening using Laplacian mask. (6+6+8)



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BCACAC 313

**Credit Based Fifth Semester B.C.A. Degree  
Examination, November/December 2015  
(New Syllabus) (2014-2015 Batch Onwards)  
WEB DEVELOPMENT IN .NET**

Time : 3 Hours

Max. Marks : 100

**Note :** Answer **any ten** questions from Part – A and **any one full** question from **each** Unit of Part – B.

**PART – A**

(10×2=20)

1. a) What are lists ? Specify the different types of lists in HTML.
- b) How do you create CANVAS in HTML5 ? Give an example.
- c) What do you mean by Transforming Message ?
- d) What is XML ? Why it is called so ?
- e) How ASP.NET is different from ASP ?
- f) What are panel controls ? Why it is used for ?
- g) What is SOAP ?
- h) What is Thread ? Write any two properties of a Thread.
- i) What are Command line arguments ? Give example.
- j) What are delegate ? Why it is used for ?
- k) What are Static constructors ?
- l) List any four method modifiers used.

**PART – B**

**Unit – I**

2. a) Illustrating with an example state how the tables are created and their tags can be made use in HTML.
- b) List and explain the various structural elements used in HTML5.
- c) How Transforming of an image is done in HTML5 ?
- d) Explain the any three CSS3 properties with suitable example.

(5+5+4)

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3. a) Explain the structure of HTML.  
b) Explain any 5 input types used to design a form in HTML file.  
c) With an example explain how rectangle can be drawn in HTML5.  
d) Write a short note on :  
i) GEO location  
ii) Video on Web.

(5+5+4+6)

**Unit – II**

4. a) Write the different characteristics of ASP.NET.  
b) Explain HTML Server controls with example.  
c) Explain the purpose, attributes, methods used with the following controls :  
i) Object DataSource  
ii) XML DataSource  
d) Explain the building blocks of XML documents.
5. a) Explain the purpose and any two properties of following controls.  
i) Radio button  
ii) CheckBox  
iii) DropDown  
b) With suitable example explain the following validator controls :  
i) Compare validator  
ii) Regular expression.  
c) What are ADO.NET objects ? Explain the purpose of any two ADO.NET objects.  
d) List any four differences between XML and HTML.

(6+5+5+4)

(6+5+5+4)

**Unit – III**

6. a) Explain scope of variable with example.  
b) What is Caching ? Explain the different techniques of Caching.  
c) With an example explain the implicit conversion in C#.  
d) Write a short note on UDDI.

(5+5+5+)



- 7. a) With suitable example explain the different Data Types used in C#.
- b) What is deployment ? Explain the different types of deployment project.
- c) Explain the security mechanism used in ASP.NET.
- d) What is Operator ? List the different types, explain any 4 types. (5+5+5+5)

**Unit - IV**

- 8. a) Explain the following loops with syntax and example.
    - i) while
    - ii) do...while
    - iii) for
  - b) With suitable example explain how method can be declared and invoked.
  - c) Explain with syntax and an example how delegates are declared.
  - d) What is Constructor ? Explain it with syntax and suitable an example. (5+5+5+5)
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- 9. a) Explain Boxing and Unboxing with example.
  - b) With suitable example explain the different types of IF statement used in C#.
  - c) What are Parameter Arrays ? Explain with example.
  - d) Using example explain how methods are overloaded in C#. (5+5+5+5)

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BCACAC 305

**Credit Based V Semester B.C.A. Degree Examination,**  
**November/December 2015**  
**(Old Syllabus) (2013-14 and Earlier Batches)**  
**ARTIFICIAL INTELLIGENCE**

Time : 3 Hours

Max. Marks : 100

**Note : Answer any 10 questions from Part - A and one full question from each Unit in Part - B.**

**PART - A**

1. a) What is AI ? (10x2=20)  
 b) What does production system consists of ?  
 c) Define the terms heuristic and heuristic function.  
 d) Define travelling salesman problem.  
 e) Define declarative knowledge with example.  
 f) What do you mean by inferential adequacy ?  
 g) What do you mean by computable predicates ? Give one example.  
 h) What is morphological analysis ?  
 i) What is classification ?  
 j) Write the output of (i) (cons 'a' (b c)) ii) (car '(a b c))  
 k) Write a LISP program to find factorial of a number using recursion?  
 l) How do you declare facts in PROLOG ? Explain with example.

**PART - B**

**UNIT - I**

2. a) Explain the algorithm for hill climbing with an example. (5+15)  
 b) Define water jug problem. Give various production rules that can be used for solving it. Give one possible solution.  
 3. a) Write breadth first search algorithm.  
 b) Write steepest ascent hill climbing algorithm. What are the problems that may arise in this method ?  
 c) Write program to play tic-tac-toe game with its data structures. (5+8+7)

4. a) With suitable example, explain predicate logic with representation of facts.  
b) Explain the various properties of attributes which are independent of specific knowledge they encode. (10+10)
5. a) List and explain four properties of a system for the representation of knowledge.  
b) With suitable example, explain the usage of Isa and instance predicates in the representation of facts.  
c) Explain inferential knowledge and procedural knowledge with example. (4+10+6)

## UNIT - III

6. a) Write graph unify theorem.  
b) What is learning by parameter adjustment? Explain. (5+5+1)  
c) With an example, explain ATN.
7. a) What are the ways of handling sentences in natural language processing?  
b) Explain case grammars with example.  
c) What is Winston's learning system? How is it different from goal of version space? (5+5+1)

## UNIT - IV

8. a) Explain the characteristic features of expert systems.  
b) Explain any six predicate functions with suitable example.  
c) How can you construct local variables in LISP? Explain with example. (5+6+5)  
d) Write a LISP function to find maximum of 3 numbers.
9. a) Explain any 4 list manipulation functions in LISP with example.  
b) How to work with Arrays and property lists in LISP.  
c) Explain conditional statements and logical functions used in LISP, with example.  
d) Explain mapping and Lambda functions in LISP. (6+5+4)







## UNIT – II

4. a) With suitable example, explain predicate logic with representation of facts.  
b) Explain the various properties of attributes which are independent of specific knowledge they encode. (10+10)
5. a) List and explain four properties of a system for the representation of knowledge.  
b) With suitable example, explain the usage of isa and instance predicates in the representation of facts.  
c) Explain inferential knowledge and procedural knowledge with example. (4+10+6)

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b) What is learning by parameter adjustment ? Explain.  
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b) Explain case grammars with example.  
c) What is Winston's learning system ? How is it different from goal of version space ? (5+5+10)

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c) Explain conditional statements and logical functions used in LISP, with example.  
d) Explain mapping and Lambda functions in LISP. (6+5+4+5)

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**BCACAC 317**

**Credit Based Fifth Semester B.C.A. Degree Examination, Nov./Dec. 2015  
(New Syllabus) (2014-15 Batch Onwards)  
MANAGEMENT INFORMATION SYSTEMS**

Time : 3 Hours

Max. Marks : 100

**Note : Answer any ten questions from Part – A and one full question from each Unit in Part – B.**

**PART – A**

**(10×2=20)**

1. a) What is classical process theory ?
- b) Define strategy.
- c) What is the importance of Planning in a Management ?
- d) What you mean by Decision Making ?
- e) What you mean by Programmed Decision Making ?
- f) What are the components of testing ?
- g) What is the mission statement ?
- h) What are the two classifications of system constraints ?
- i) What are the important properties of conceptual design flowchart ?
- j) What are the four basic methods for implementing the MIS ?
- k) What is cutover ?
- l) What are the contents of space planning ?

**PART – B**

**Unit – I**

2. a) Explain the different steps of controlling process.
  - b) Explain the need of information for planning.
  - c) Write a note on decision theory.
  - d) Justify the information system aid planning process. **(5+5+5+5)**
3. a) Explain system approach to organizing.
  - b) Write a note on Systems view of Business.
  - c) Explain the Major Factors that affects the Productivity.
  - d) Differentiate short Range planning and long range planning. **(5+5+5+5)**

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**Unit – II**

4. a) With the help of diagram, explain the Basic Information System.  
b) How management science solves Decision problems ? Explain.  
c) Differentiate Programmed and Non-Programmed Decision making.  
d) Write a short note on MIS objectives. (5+5+5+5)
5. a) Write a note on Financial Information system.  
b) With the help of diagram explain the Automation of Decision making.  
c) Write a note on making Non-Programmed decision making with MIS.  
d) Explain the needs and objectives of MIS Planning. (5+5+5+5)

**Unit – III**

6. a) Explain with a neat diagram the constraints of MIS design.  
b) Develop a list of criteria for company's alternative conceptual design.  
c) Explain the process of documenting the system design. (7+7+6)
7. a) Explain the process of setting system objectives.  
b) Why is the need of information for managers and management ?  
c) How the information sources are determined in the system design ? Explain the categories of sources of information. (7+6+7)

**Unit – IV**

8. a) Explain computer related acquisitions for implementation.  
b) Explain the control and maintenance of MIS.  
c) Explain the pitfalls in MIS development. (4+8+8)
9. a) Discuss the various implementation issues in MIS.  
b) Explain the process of planning the implementation.  
c) Explain the design problems in MIS. (6+7+)

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**PART – A**

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