

**PGVS-883 A-21**  
**M.C.A (3Years Course) V Semester (CBCS) Degree Examination**  
**COMPUTER SCIENCE**  
**Web Programming**  
**Paper : MCA51T**  
**(New Syllabus)**

**Time : 3 Hours****Maximum Marks : 80****Instructions to Candidates:**

- 1) Answer any **five** questions.
  - 2) All Questions carry **equal** Marks.
- 
1. a) State and explain website design principles used to design for Screen. (8)  
b) Differentiate between HTML and XML Languages. (8)
  2. a) What are website design principles used for design for computer medium? (8)  
b) Write a HTML program to illustrate row span and column span attribute of table.(8)
  3. a) What is web browser? Explain its architecture. (8)  
b) Explain HTTP in detail. (8)
  4. a) With a neat diagram, Explain Client-Server Interaction Model. (8)  
b) List and explain the basic types of Web Documents. (8)
  5. a) Explain dowhile loop, While loop and for loop used in JavaScript with its general syntax. (8)  
b) Explain different Variable types used in Java Script. (8)
  6. a) Write a JavaScript program (8)
    - i) To find sum of two numbers.
    - ii) To swap two numbers.  
b) With a neat diagram, Explain Windows and Frames in javaScript. (8)
  7. a) Explain the features and uses of perl. (8)  
b) Explain Simple input and output statements used in Perl. (8)

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

(2×8=16)

- a) Web Browsers.
  - b) SOAP.
  - c) JavaScript Functions.
  - d) Scalars in Perl.
-

Roll No \_\_\_\_\_

[Total No. of Pages : 2

**PGVS-884 A-21**  
**M.C.A (3 Years Course) V Semester (CBCS) Degree Examination**  
**COMPUTER SCIENCE**  
**Digital Image Processing**  
**Paper : MCA52T**  
**(New Syllabus)**

**Time : 3 Hours**

**Maximum Marks : 80**

**Instructions to Candidates:**

- 1) Answer any **five** questions.
  - 2) All Questions carry **equal** Marks.
1. a) What are the components of digital image processing system? Explain them briefly(8)
  - b) With a diagram describe the human vision system. (8)
  2. a) Explain HSI color model. What are the advantages and disadvantages of this model? Discuss. (8)
  - b) Derive expression for one and two dimensional Fourier transform in discrete domain. (8)
  3. a) The gray levels and number of pixels for each gray level for an image are given as follows along with the desired image. Apply histogram specification and find modified image. (8)

Gray level	0	1	2	3	4	5	6	7
No. of pixels in original image	4	1	10	2	12	16	4	2
No. of pixels in desired image	0	0	0	0	20	20	16	8

- b) Discuss Gaussian and exponential noise distributions. (8)

4. a) Using a  $3 \times 3$  structuring element perform median filtering on the following image. Pad zero for outside boundary pixels. (8)

9	1	7	2	6
8	6	8	5	1
0	4	2	0	3
7	3	1	8	0
1	2	5	6	9

- b) Explain histogram equalization. (8)
5. a) Discuss the spatial and frequency properties of noise. (8)
- b) Write algorithm for constrained image restoration with lagrange multiplier. (8)
6. a) What is deterministic blur? How to restore image in presence of deterministic blur? (8)
- b) Discuss perspective transformations and Cartesian to polar coordinate conversions. (8)
7. a) How codes are generated using arithmetic encoding? Explain. (8)
- b) What is vector quantization? How it works in compression? Discuss. (8)
8. Write notes on any **two** of the following (2×8=16)
- a) Dither
  - b) Homomorphic filtering
  - c) Hough transform
  - d) Watershed dam construction.
-

Roll No \_\_\_\_\_

[Total No. of Pages : 2

**PGVS-885 A-21**  
**M.C.A 3 Years Course V Semester Degree Examination**  
**COMPUTER SCIENCE**  
**Modeling & Simulation**  
**Paper : MCA53T**  
**(New Syllabus)**

**Time : 3 Hours**

**Maximum Marks : 80**

***Instructions to Candidates:***

- 1) Answer any **Five** questions.
- 2) All Questions carry **equal** Marks.

1. a) Discuss the steps involved in the effective conduct of simulation study. **(8+8)**  
b) What is a system? Explain the various components of simulation with an example.
2. a) What do you mean by system modelling? Write the differences between continuous and discrete systems. **(8+8)**  
b) Explain in detail the event scheduling /Time advance algorithm.
3. a) Explain the following continuous distributions: **(8+8)**  
i) Normal            ii) Exponential  
b) Write an algorithm to generate pseudo random numbers from a given exponential distribution.
4. a) Explain how acceptance-rejection method is used to generate Poisson variates compute 6 Poisson variates with mean  $\lambda = 0.25$ . **(8+8)**  
b) What is Queuing model? Explain its different characteristics.

5. a) What is the need for the FOUNDATION blocks in GPSS? How it is used? Explain Briefly. (8+8)
- b) Give the syntax and explain the semantics of the following GPSS blocks.
- i) GENERATE
  - ii) TRANSFER
  - iii) START
  - iv) LOGIC
6. a) Explain (8+8)
- i) Data Collection
  - ii) Goodness of fit tests.
- b) Explain the methods of selecting input models without data.
7. a) Discuss the difference between verification and validation of models. Also discuss the guidelines for verification of models. (8+8)
- b) What are transients ? How do you eliminate them? Explain.
8. Write Short notes on any **Two** of the following. (8+8)
- a) Convolution method.
  - b) Trends in Simulation software
  - c) variance reduction technique.
-

**PGVS-886 A-21**  
**M.C.A. (3 Years Course) V Semester (CBCS) Degree Examination**  
**COMPUTER SCIENCE**  
**Big Data Analytics**  
**Paper : MCA54T**  
**(New Syllabus)**

**Time : 3 Hours**

**Maximum Marks : 80**

***Instructions to Candidates:***

- 1) Answer Any **Five** Questions.
- 2) All Questions carry **equal** Marks.

1. a) What are the characteristics of Big data? (8)  
b) What is Big Data? Describe the main features of a big data in detail. (8)
2. a) Explain in detail about Nature of data and its applications. (8)  
b) Explain in detail about storage considerations in Big Data. (8)
3. a) Mention the differences between RDBMS and Hadoop? (8)  
b) What are the data components used by Hadoop? Explain with example. (8)
4. a) Write a note on Grid Computing. (8)  
b) Explain in details types of data. (8)
5. a) Explain heartbeat in HDFS? (8)  
b) Describe the Command-Line Interface and Basic Filesystem Operations with example. (8)

6. a) What is Job Tracker in Hadoop? What are the actions followed by Hadoop? (8)  
b) How can you set the mappers and reducers for a MapReduce Job? (8)
7. a) How YARN allocates resources to an application with the help of its architecture.(8)  
b) What are the major components of a Pig execution Environment? (8)
8. Write Notes on any **Two** of the following: (2×8=16)
- a) Firewall Analytics.
  - b) Hadoop Ecosystem.
  - c) Hadoop Filesystem Interfaces.
  - d) Hadoop Logs.
-

Roll No \_\_\_\_\_

[Total No. of Pages : 2

**PGVS-887 A-21**  
**M.C.A (3 Years Course) V Semester (CBCS) Degree Examination**  
**COMPUTER SCIENCE**  
**Artificial Intelligence**  
**Paper : MCA57T**  
**(New Syllabus)**

**Time : 3 Hours**

**Maximum Marks : 80**

***Instructions to Candidates:***

- 1) Answer any **five** questions.
  - 2) All Questions carry **equal** Marks.
- 
1. a) AI is the study of techniques for solving exponentially hard problems in polynomial time by exploiting knowledge about the problem domain. Explain . (8)
  - b) Explain water jug problem and its relevance to AI. (8)
  2. a) Explain the advantages of considering AI problems as state space search problems.(8)
  - b) Explain Depth First Search method with suitable example. (8)
  3. a) Explain Hill climbing method as a heuristic method for solving AI problems. (8)
  - b) Explain Problem reduction as a heuristic method for solving AI problems. (8)
  4. a) Explain inheritable knowledge as an approach to knowledge representation in AI problems. (8)
  - b) Explain Resolution principle as a syntactic inference procedure in AI systems. (8)
  5. a) Make a comparative study of FOPL Statements and Prolog statements (8)
  - b) Explain non-monotonic reasoning as an approach in AI Systems. (8)
  6. a) Distinguish between weak and strong slot-and filler structures in AI (8)
  - b) Explain Conceptual Dependency as a slot-and -filler structures used in AI (8)
  7. a) Explain steps involved in Natural Language Understanding (8)
  - b) Explain Case grammars and its advantages. (8)

8. Write short notes on any **Two** of the following

(2×8=16)

- a) Skolem functions in Predicate Logic
  - b) Production systems in AI
  - c) Macros
  - d) Expert system shells.
-