B.Sc. Semester-V Examination, 2022-23

COMPUTER SCIENCE [Honours]

Course ID : 51517   **Course Code : SH/CSC/504/DSE-2**

Course Title : Digital Image Processing - Theory

OR

Microprocessor - Theory

Time : 1 Hour 15 Minutes   Full Marks : 25

The figures in the right-hand margin indicate marks.

Candidate examinees are required to answer the questions on their self independent analyses.

Answer **all** the questions.

(Digital Image Processing - Theory)

UNIT-I

1. Answer any **five** of the following questions:

$1 \times 5 = 5$

   a) Define RGB image.

   b) Define image blurring.

   c) Define gradient of an image.

   d) What is median filter?

   e) Define image compression.

   f) Define Discrete wavelet transformation.

   g) What is an edge?

   h) Define image histogram.

[Turn Over]

UNIT-II

2. Answer any **two** of the following questions:

$5 \times 2 = 10$

   a) Explain Fourier transformation.

   b) Write a short note on CMYK color model.

   c) Write down some applications of digital image processing.

   d) Write a short note on image filtering.

UNIT-III

3. Answer any **one** of the following questions:

$10 \times 1 = 10$

   a) Explain the Hit-or-Miss transformation.

   b) What are the advantages of adaptive filters? Explain about adaptive median filter.

(Microprocessor - Theory)

UNIT-I

1. Answer any **five** of the following questions:

$$1 \times 5 = 5$$

a) Define microprocessor.

b) Define microcontroller.

c) Name the different types of addressing modes.

d) Define instruction cycle.

e) What is the function of RESET pin of 8086 microprocessor?

f) What is the function of READY pin of 8086 microprocessor?

g) What is the necessity of two MSB bits of Count register in DMA controller?

h) What is BIU?

UNIT-II

2. Answer any **two** of the following questions:

$$5 \times 2 = 10$$

a) Explain the functioning of segment register.

b) Write short note on write Cycle Timing Diagram for minimum mode.

c) Write down the features of 8086 microprocessor.

d) Write short note on Arithmetic Instructions with examples.

UNIT-III

3. Answer any **one** of the following questions:

$$10 \times 1 = 10$$

a) Explain the different addressing modes for 8086 microprocessor to

b) Write assembly level program for 8086 microprocessor to compute

   i) two 8-bit multiplication

   ii) two 8-bit division.

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