

B.Sc. 5th Semester (Honours) Examination, 2019-20

COMPUTER SCIENCE

Course ID : 51517

Course Code : SH/CSC-504-DSE-2

Course Title: Microprocessor and Digital Image Processing

Time: 1 Hour 15 Minutes

Full Marks: 15

*The figures in the right hand side margin indicate full marks.
Candidates are required to give their answers in their own words
as far as practicable.*

MICROPROCESSOR

1. Answer *any five* questions: 1×5=5
- (a) Write two differences between 8085 and 8086 microprocessors.
 - (b) 'Memory size in 8086 is 1 MB.'— Explain why?
 - (c) How is the stack top address is calculated in 8086?
 - (d) What is the function of M/IO pin?
 - (e) Write function of INC instruction.
 - (f) What is the difference between Conditional Jump and Unconditional Jump?
 - (g) What is the function of reset pin in 8086?
 - (h) What is assembler?
2. Answer *any two* questions: 5×2=10
- (a) Explain the function of following instructions:
 - (i) CMP
 - (ii) XCHG
- What is instruction execution cycle? 2+2+1=5
- (b) Write a program in 8086 ALP which will add two bytes from memory. 5
 - (c) Discuss about various memory segments available in 8086. 5
 - (d) Explain with example
 - (i) Register addressing mode
 - (ii) Base indexed addressing mode
- Define addressing mode. 2+2+1=5

3. Answer *any one* from the following: 10×1=10
- (a) Draw the PIN diagram of 8086 microprocessor and explain function of each pin in brief. 10
 - (b) What is meant by assembler directive? Explain different flag bits available in flag register of 8086. What is the difference between CALL and RET? 1+7+2=10

DIGITAL IMAGE PROCESSING

1. Answer *any five* questions: 1×5=5
- (a) Define Image Sampling.
 - (b) What is quantization?
 - (c) Give the condition for perfect transform.
 - (d) What is Image Enhancement?
 - (e) Explain Spatial filtering.
 - (f) What do you mean by Gray Level?
 - (g) What is meant by image compression?
 - (h) What is tuple?
2. Answer *any two* questions: 5×2=10
- (a) Describe the fundamental steps in image processing. 5
 - (b) Describe the CMY color model. 5
 - (c) Describe Fast Fourier transform. 5
 - (d) Write short notes on image segmentation. 5
3. Answer *any one* question: 10×1=10
- (a) What is the purpose of image averaging? Define histogram. Explain the different noise distribution in detail. 2+2+6=10
 - (b) Define encoder. What are the types of decoder? Define compression and explain the general compression system model. 2+2+6=10
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