**20EC705/JO**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular) DEGREE EXAMINATION** | | | | |
| **January, 2024** | | **Electronics & Communication Engineering** | | |
| **Seventh Semester** | **Digital Image Processing** | | | |
| **Time:** Three Hours | | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | | **(4X14=56 Marks)** |
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|  |  |  | CO | BL | M |
| 1 | a) | Define pixel? | CO 1 | L1 | 1M |
|  | b) | List out different applications of Digital Image processing? | CO 1 | L1 | 1M |
|  | c) | Define blind spot. | CO 1 | L1 | 1M |
|  | d) | Mention any two types storages used in elements of DIP. | CO 1 | L2 | 1M |
|  | e) | Define contrast enhancement | CO 2 | L1 | 1M |
|  | f) | If all the pixels in an image are shuffled, will there be any change in histogram? Justify your answer with an example. | CO 2 | L2 | 1M |
|  | g) | Give the 3x3 average filtering mask? | CO 2 | L1 | 1M |
|  | h) | State the 2D convolution theorem | CO 2 | L1 | 1M |
|  | i) | Define Uniform noise? | CO 3 | L2 | 1M |
|  | j) | What is the drawback of inverse filtering? | CO 3 | L2 | 1M |
|  | k) | What is colour space and mention its classification | CO 3 | L2 | 1M |
|  | l) | Define compression ratio. | CO 4 | L2 | 1M |
|  | m) | What are the effects of dilation process | CO 4 | L1 | 1M |
|  | n) | Define morphology. | CO 4 | L2 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Explain the components of image processing | CO 1 | L7 | 7M |
|  | b) | Briefly discuss image sampling and quantization | CO 1 | L7 | 7M |
| **(OR)** | | | | | |
| 3 | a) | Explain about the following briefly (i) Different distance measures (ii) 8 & m-adjacency. | CO 1 | L4 | 7M |
|  | b) | Explain about HVS and its properties in sensing an object by human eye. | CO 1 | L10 | 7M |
| **Unit-II** | | | | | |
| 4 | a) | Explain image smoothing in spatial domain. | CO 2 | L6 | 7M |
|  | b) | Evaluate histogram equalized image for the given input image | CO 2 | L8 | 7M |
| **(OR)** | | | | | |
| 5 | a) | Explain image sharpening in frequency domain | CO 2 | L7 | 7M |
|  | b) | Explain different point processing operations | CO 2 | L7 | 7M |
| **Unit-III** | | | | | |
| 6 | a) | Explain different order static filters | CO 3 | L8 | 7M |
|  | b) | Explain in detail RGB color model | CO 3 | L6 | 7M |
| **(OR)** | | | | | |
| 7 | a) | Explain notch filters for periodic noise reduction | CO 3 | L7 | 7M |
|  | b) | Explain about pseudo colour processing. | CO 3 | L7 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | Explain the block diagram of image compression | CO 4 | L7 | 7M |
|  | b) | Explain how dilation and erosion are implemented on an image | CO 4 | L7 | 7M |
| **(OR)** | | | | | |
| 9 | a) | Implement Arithematic coding for the code word “HELLO” | CO 4 | L7 | 7M |
|  | b) | Explain HIT or MISS transform with example | CO 4 | L7 | 7M |

