

Seat No.	
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**B.E. (Electronics & Telecommunication) (Semester - VIII)**  
**(Revised) Examination, November - 2017**  
**DIGITAL IMAGE PROCESSING**  
**Sub. Code: 67818**

**Day and Date : Friday, 03 - 11 - 2017**  
**Time : 10.00 a.m. to 1.00 p.m.**

**Total Marks : 100**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.
  - 3) Assume suitable data if necessary.

**Q1) Attempt any two of the following:**

**[2×8=16]**

- a) Explain basic concept of sampling and quantization of images to convert in digital form.
- b) Draw the structure of human eye and explain elements of visual perception.
- c) Explain the components of image processing system with neat block diagram.

**Q2) Attempt any two of the following:**

**[2×8=16]**

- a) Explain power law transformation and log transformation with their characteristic curve.
- b) Explain Haar transformation.
- c) What is meant by histogram of an Image? Explain the significance of histogram equalization

**Q3) Attempt any two of the following:**

**[2×9=18]**

- a) Explain the significance of first order and second order derivative for image sharpening.
- b) Explain high pass filters in frequency domain.
- c) Explain linear and non - linear smoothing filters in spatial domain.

**P.T.O.**

**Q4)** Attempt any two of the following:

**[2×8=16]**

- a) Explain Hit - or - Miss transform in detail.
- b) Explain Erosion operation in detail along with mathematical expressions and example.
- c) What is use of region filling algorithm? Explain the steps for region filling inside an object in an image with example.

**Q5)** Attempt any two of the following:

**[2×8=16]**

- a) Explain region splitting and merging algorithm in detail.
- b) What is global and adaptive thresholding, explain in detail
- c) How to detect a line or edge in an image explain with an example?

**Q6)** Attempt any two of the following:

**[2×9=18]**

- a) What is coding redundancy? Explain with the help of example.
- b) What is lossy predictive coding, explain in detail.
- c) Draw the block diagram of image compression model and explain in detail.

