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<b>Program/Course</b>	:	<b>Mechatronics</b>					
<b>Semester</b>	:	<b>VIII</b>					
<b>Name of the Subject</b>	:	<b>Machine Vision</b>					
<b>Subject Code</b>	:	<b>MEEL 461</b>					
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<b>Note: Please mention additional Stationery to be provided, during examination such as Table/Graph Sheet etc. else mention "NOT APPLICABLE":</b>							
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**Note: - Pl. start your question paper from next page**

SET-I

Roll No: -----

UNIVERSITY OF PETROLEUM  
AND ENERGY STUDIES



End Semester Examination, April, 2017

Program/course: Mechatronics

Subject: Machine Vision

Code : MEEL 461

No. of page/s: 1

Semester – VIII

Max. Marks : 100

Duration : 3 Hrs.

Section-A

5 x 4 = 20

Answer all the following Questions

1. Explain Linear Image transforms? 4M
2. Explain & why Amplitude Transformation? 4M
3. Explain image preprocessing steps? 4M
4. Explain internal & external Fragmentation? 4M
5. Why Quality Assurance is required step in DIP? 4M

Section-B

4 x 10 = 40

Answer all the following Questions

6. Explain briefly about Sampling Techniques? 10M
7. Explain Phase Transformation in detail? 10M
8. Explain the difference between Mean filtering and Gaussian Filtering? 10M
9. Explain convolution theorem steps in detail? 10M

Section-C

2 x 20 = 40

Answer any two of following Question

10. Explain the procedure for how signal reconstruction is forming through Samples in detail? 20M
11. Speech Signal has a Band Width of 4KHz. if every sample is digitized using 8-bits and the digital speech is to be transmitted over a communication channel, what is the minimum Band Width requirement of the channel? 20M

Or

Explain the following 10M + 10M

- A. Nyquist rate and Aliasing
- B. Fourier Series & Fourier Transform

SET-II

Roll No: -----

UNIVERSITY OF PETROLEUM  
AND ENERGY STUDIES



End Semester Examination, April, 2017

Program/course: Mechatronics  
Subject: Machine Vision  
Code : MEEL 461  
No. of page/s: 2

Semester – VIII  
Max. Marks : 100  
Duration : 3 Hrs.

Section-A

5 x 4 = 20

Answer all the following Questions

1. Why do we need Digitization? 4M
2. What is digitization? 4M
3. How to digitize an image? 4M
4. What is Sampling? 4M
5. Why Fourier Series? 4M

Section-B

4 x 10 = 40

Answer all the following Questions

6. Explain the following 5M + 5M
  - A. Linear Image transforms?
  - B. Amplitude Transformation?
7. Explain Nyquist rate and Aliasing in detail? 10M
8. Explain Fourier Series & Fourier Transform in detail? 10M
9. Explain the difference between Mean filtering and Gaussian Filtering? 10M

Section-C

2 x 20 = 40

Answer any two of following Question

10. Speech Signal has a Band Width of 4KHz. if every sample is digitized using 8-bits and the digital speech is to be transmitted over a communication channel, what is the minimum Band Width requirement of the channel? 20M
11. Explain the following 10M +10M
  - A. 1-D Sampling
  - B. 2-D Sampling

**Or**

**Explain the following 10M +10M**

- A. How image reconstruction will happens through Sampling**
- B. Explain Image Quantization?**