# SHIVAJIRAO S. JONDHALE COLLEGE OF ENGINEERING DEPARTMENT OF IT ENGINEERING

**Subject : Principle of Communications**

**SEM III Date : 08-10-2019  
 Time : 3 hours Marks : 80**

**Intructions :**  
(1) Question 1 is mandatory  
(2)Do not Copy

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## Q1. Answer the following 20 Marks

1. Compare the following : PCM and DM **(5 Marks)**

2. Compare the following: Analog and digital communication systems. **(5 Marks)**

3. Explain the granular noise. **(5 Marks)**

4. List advantages and disadvantages of ground wave propagation. **(5 Marks)**

## Q2. Answer the following 20 Marks

1. In relation with FM, explain a) Maximum frequency deviation b) Modulation index c) Frequency spectrum and bandwidth d) Pre-emphasis. **(8 Marks)**

2. Draw neat diagram and explain delta modulation. What are the limitations of delta modulation ? **(8 Marks)**

3. An isotropic source is transmitting a power of 10 kW. Calculate the power density at a point which is 20 km away from the source. **(4 Marks)**

## Q3. Answer the following 20 Marks

1. Explain A-law and u-law companding. **(5 Marks)**

2. Explain frequency spectrum of the AM wave. **(5 Marks)**

3. Explain the delta modulator transmitter and receiver with neat block diagrams. **(10 Marks)**

## Q4. Answer the following 20 Marks

1. What are limitations of TRF receiver ? Explainhow these limitations are avoided using superheterodyne receiver ? **(10 Marks)**

2. Explain slope overload error and hunting error in delta modulation. Derive condition to avoid slope overload distortion. **(10 Marks)**