Government College of Engineering, Amravati

(An Autonomous Institution of Government of Maharashtra)

Programme Name: B.Tech. Information Technology

Class Test- II(DSY) **Course Code – ITU301** **Course Name: Comm. Engg.**

Duration-1Hr **Academic Year-2016-17** **Max. Marks-15**

Q.1] Solve any three of the following.(Each question carries 05 marks.)

a) Derive the expression for current relation and power relation in the amplitude modulation wave and calculate the percentage power saving when the carrier and one of the sideband are suppressed in an AM modulated wave to a depth of 50%.

b) Differentiate between FM and AM

c) Draw the circuit diagram of balanced modulator using diode and explain its operation.

OR

d) Describe generation of DSB-SC by using FET modulator and derive the necessary expression.

Government College of Engineering

Department of Information Technology

Class Test- II (Winter 2017-18)

Sub: ITU301 COMMUNICATION ENGINEERING Marks: 15

Solve any three (each of 5 marks)

Q.1 Define the term 'Modulation Index in FM' and Differentiate between FM &AM.

Q.2 An audio frequency signal 20 sin $2\pi \times 500$ t is used to amplitude modulate a carrier of 80 sin $2\pi \times 10^6$ t. Calculate (i) Modulation index, (ii) Sideband frequencies, (iii) Amplitude of each sideband frequencies, (iv) Bandwidth required, (v) Total power delivered into a load of 600 Ω.

Q.3 Discuss the relative merits and demerits of SSB over DSB system of transmission.

Q.4 Derive expression for total voltage, total current and modulation index in terms of current in an AM wave.