**Karunya University**

**(Karunya Institute of Technology and Sciences)**

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examinations – June 2016**

**Subject Title: Communication Engineering Time : 3 hours**

**Subject Code : 14EC2080 Maximum Marks: 100**

**Answer ALL questions (5 x 20 = 100 Marks)**

1. a. Derive the mathematical analysis of Frequency modulation & represent it diagrammatically. (15)

b. Mention the need for modulation. (5)

**(OR)**

2. Derive the mathematical analysis of Amplitude modulation, it’s power calculation with necessary diagrams.

3. With necessary diagrams, describe about ‘Balanced Modulator’.

**(OR)**

4. Discuss in detail about Round Travis detector with the help of a neat sketch.

5. Describe about the superheterodyne Receiver with a neat block diagram.

**(OR)**

6. Analyze on the Signal to noise ratio of a single sideband suppressed carrier.

7. Elaborate on the various digital modulation techniques with neat diagrams.

**(OR)**

8. Discuss about the pulse modulation techniques with example.

**Compulsory:**

9. Describe about the Television transmitter and Receiver with neat diagrams.