ACTIVITY CODE: 1903069021

B.Sc. 6th Semester (Honours) Examination, October 2020

Subject: *Electronics (H)*

Course ID: 61711 Course Code: SH/ELC/601/C-13(TH)

Course Title: *Communication Electronics*

Full Marks: 12 Time: 45 mins

General guidelines

1. Answer all the questions provided in the question paper.
2. The figures in the right hand side margin indicate marks.
3. You should submit the answer script as prescribed by the University guidelines within the stipulated time and way.

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(The figures in the right hand side margin indicate marks
Answer all the questions)

1. Answer *any two* of the following questions 1×2=2
   a) What are three main elements of any communication system?
   b) What is noise in communication electronics?
   c) What is Signal-to-Noise Ratio (SNR)?
   d) How many types of modulation are there? Name them.
   e) What are sidebands in AM wave propagation?
   f) What is Amplitude Demodulation?

2. Answer *any one* of the following questions. 2×1=2
   a) How many types of noises are observed in Electronic Communication Systems? Name those noises.
   b) What is modulation index in AM wave?
   c) Draw the frequency spectrum for an AM wave.
   d) Define Bandwidth (BW) in case of AM wave propagation. What is its numerical value?
   e) Draw the circuit diagram of a linear diode detector.
   f) What is thermal noise? What is its main importance in communication?

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3. Answer *any two* of the following questions. 4×2=8

a) Obtain an expression for total transmitted power of an AM wave when carrier wave power (P_c) and depth of modulation (m_a) is given. 4

b) Draw the block diagram of an AM transmitter and explain the function of each different block of it briefly. 4

c) What is 'Super-Heterodyne' principle? Where is it used? What is its importance over earlier devices? 2+1+1=4

d) Draw the block diagram of an 'FM transmitter' and explain the function of each different block of it briefly. 4

e) What is partition noise? Where is it generated? What is its magnitude in comparison with 'thermal noise' and 'shot noise'? 1+1+2=4

f) What is an 'Intermediate Frequency' (IF) amplifier? Where is it used? For an AM radio receiver what is its standard value? 2+1+1=4

g) Give the comparison between AM, FM and PM waves briefly. 4

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