International Islamic University Chittagong

Department of Electronic and Telecommunications Engineering

Final Examination

Program: B.Sc. (Eng.) | Semester: Spring,2019
Course Code: ETE-4705 | Course Title: Satellite Communications
Time: 2 Hour 30 Min | Full Marks: 50

Group-A

Answer any **two** questions. The numbers in the right margin indicate full marks.

Q.1 (a) Point out the distinction between rain and cloud attenuation? 2
(b) Compare MATV & CATV. 2
(c) Elaborate the procedures involved in test equipment measurements on G/T, C/NO and EIRP with reference to the earth segment. 6

Q.2 (a) Derive the satellite link design equation. 3
(b) Calculate the guard time of TDMA. 2
(c) Explain the prediction of XPD. 5

Q.3 (a) You know, ISRO has failed to communicate with Chandrayaan-2 at the last phase to land on the moon. How do a spacecraft and astronauts communicate with control room or other entities? 4
(b) Demonstrate sky noise. 3
(c) A satellite downlink at 10GHz operates with a transmit power of 5w and an antenna gain of 48.2dB. Estimate the EIRP in dBW. 3

Group-B

Answer any **three** questions. The numbers in the right margin indicate full marks.

Q.4 (a) Describe what satellite communication protocol used in satellite communication. 5
(b) Describe the Spade System with suitable diagram. 5

Q.5 (a) Classify the two areas of satellite communications which are gaining major thrust from leading satellite industries and organizations in recent years. 5
(b) Distinguish pre-assigned and demand assigned traffic. 3
(c) Determine the limitations of CDMA. 2

Q.6 (a) Explain the operation of a typical VSAT Communication System. State briefly where VSAT system find widest application. 6
(b) Write some merits and demerits of using satellites in LEOs, MEOs, and GEOs for mobile satellite communications. 4

Q.7 (a) Discuss how GSM & GPS deploying satellites have improved the mobility of the customers. 5
(b) Propose a technique of encoding for GPS receiver 5