THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND COMMUNICATIONS ENGINEERING

SECOND SEMESTER EXAMINATION (2021)

EE-323 / EE-472: MOBILE AND SATELLITE COMMUNICATIONS

THIRD YEAR (NEW COURSE) AND FINAL YEAR (OLD)

TIME ALLOWED: 3 HOURS

INFORMATION FOR STUDENTS

1. You have **TEN (10) MINUTES** to read the paper.
   You must not begin writing during this time.

2. **Answer all questions.**

3. All answers must be written in the **ANSWER BOOK** supplied.

4. **COMPLETE THE DETAILS REQUIRED ON THE FRONT COVER OF YOUR ANSWER BOOK – DO THIS NOW.**

5. Only drawing instruments and calculators are permitted on your desk.
   Textbooks and notebooks are **NOT** permitted.

6. If you are found cheating in the Examination, the penalties specified by the University shall apply.

7. TURN OFF all Mobile Phone and place them on the floor under your seat before the start of Examination

QUESTION ONE: [10 MARKS]

A. The distance between two antennas in an LOS propagation is 70 Km and the height of antenna 1 is 80 Meters. Calculate the Height of antenna 2 ?

[5 marks]

B. Evaluate the minimum number of channel sets required for a cell having the radius of 5 meters and the frequency reuse distance is 12 ?

[5 Marks]

QUESTION TWO: [10 MARKS]

A. Criticize how the Structure of a Cell in Mobile Communication impact the quality of the calls with the help of an Diagram ?   [5 marks]

B. Explain how the calls gets connected in Mobile Communication ? [5 marks]

QUESTION THREE: [10 MARKS]

A. Explain the various types of Hands-off in Mobile Communication ? [5 Marks]

B. Compare between Static and Dynamic channel allocation?

[5 Marks]

QUESTION FOUR: [10 MARKS]

A. Explain the working and importance of the routing protocols LEACH and PEGASIS ?   [5 Marks]

B. Theorise how the Satellite works? Also mention the advantage and disadvantage of Satellites ?   [5 Marks]