



**THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL AND COMMUNICATIONS
ENGINEERING**

SECOND SEMESTER EXAMINATION (2021)

EE-522 - OPTICAL COMMUNICATION NETWORKS

ME - COMMUNICATION ENGINEERING

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:

- A. Explain the block diagram of optical fiber communication system ?
- B. Mention the merits and de-merits for fiber optic communication?
(5+5 marks)

QUESTION TWO:

- A. Differentiate LED and LASER? [2 Marks]
- B. Differentiate n-type and p-type semiconductors ? [3 Marks]
- C. State the differences between Single mode and Multi-mode step index fiber?
[5 Marks]

QUESTION THREE:

- A. Explain the splicing techniques of optical fiber ?
- B. Explain different type of couplers used in optical fiber ? (5+5 Marks)

QUESTION FOUR:

- A. State the differences between GaAs infrared LED and GaAsP visible LED ?
- B. Explain the Quantum Efficiency in LED ?
(5+5 Marks)

QUESTION FIVE:

- Explain the Spectral linewidth and modulation of Laser Diodes ?
(10 Marks)