FEDERAL UNIVERSSITY OF TECHNOLOGY, OWERRI
SCHOOL OF HEALTH TECHNOLOGY
DEPARTMENT OF BIOMEDICAL TECHNOLOGY
2012/2013 RAIN SEMESTER EXAMINATION

COURSE: EQUIPMENT RELIABILITY AND SAFETY TECH. **COURSE CODE: BMT 522**

Instruction: Instruction: Answer any four questions **Time: 2hours**

1(a) What do you understand by each of the following?
(i) Safety (ii) System safety (iii) Equipment failure (iv) Industrial safety (v) Reliability improvement.
(b) State two (2) factors considered for measuring equipment reliability.
(c) Outline five (5) objectives of maintenance.
(d) Explain three (3) types of maintenance.

(Total: 20marks)

2(a) Define equipment failure and state its causes?
(b) State four types of equipment failure.
(c) Outline four modes of predicted failure.
(d) Distinguish between two (2) ways of assessing randomized hardware failures of biomedical equipments.

(Total: 20marks)

3(a) Distinguish between system safety and industrial safety.
(b) Outline five (5) general principles of system safety.
(c) What do you understand by each of the following?
(i) Reduction of leakage current (ii) Operation at low voltage (iii) grounding.
(d) Does all equipment failures involve hazard or not. Discuss with appropriate examples.

(Total: 20marks)

4(a) Briefly explain any four (4) physiological effects of electricity flow through human system.
(b) Briefly explain three (3) areas that can be resulted in achieving reliability, safety and maintainability of biomedical equipments.
(c) Distinguish between fibrillation and tetanus in terms of flow of electric current to human system under the following (i) Cause (ii) Effects and (iii) Remedy(s).

(Total: 20marks)

5(a) Briefly explain three (3) methods employed in design of isolation amplifier.
(b) Define shock and state two types of shock hazard.
(c) Briefly explain two (2) protection method of electricity against hazard
(d) How can human experiences electric shock.

(Total: 20marks)

6(a) Outline five safe practices applicable to biomedical devices.
(b) What do you understand by each of the following?
(i) Electrical Codes (ii) Standards (iii) Guides (iv) Quality assurance (v) Quality control
(c) Outline five (5) safe practices applicable to biomedical devices.
(d) What are the responsilities of QC and GMP?

(Total: 20marks)