

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI
SCHOOL OF HEALTH TECHNOLOGY
DEPARTMENT OF BIOMEDICAL TECHNOLOGY

2011/2012 RAIN SEMESTER EXAMINATION

COURSE: EQUIPMENT RELIABILITY AND SAFETY TECH.

COURSE CODE: BMT 522

Instruction: Answer any four questions

Time: 2 hours

- 1(a) What do you understand by each of the following?
(i) Equipment reliability (ii) Equipment failure (iii) Repair of equipment (iv) Industrial safety (v) Reliability growth
(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) What are the causes of equipment failure?
(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 three (3) areas that can be resulted in achieving reliability, safety and maintainability of biomedical equipments.
(b) 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).
(c) Briefly explain any five physiological effects of electricity flow through human system.
- (Total: 20marks)
- 5(a) Briefly explain three (3) methods employed in design of isolation amplifier.
(b) Distinguish between the 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) 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 responsibilities of QC and GMP?
- (Total: 20marks)