



Technical University of Mombasa

Faculty of Engineering and Technology
DEPARTMENT OF MEDICAL ENGINEERING

DIPLOMA IN MEDICAL ENGINEERING
(DME 112/ Y2 S2)

ECL 2202
OPERATING THEATRE EQUIPMENT

END OF SEMESTER EXAMINATIONS

SERIES: DECEMBER, 2013
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

- This paper consists of **FIVE** questions
- Question **ONE** is **COMPULSORY**
- Attempt **ANY TWO** questions.

This paper consists of **3 PRINTED** pages

QUESTION ONE

- (a) Outline any **EIGHT** superior feature constructions that an operating theatre table has over a dental chair besides their driving mechanisms. **(8 marks)**
- (b) List the **FOUR** types of operating theatre tables as determined by their various driving mechanisms. **(4 marks)**
- (c) Describe an operating theatre hall/room **(2 marks)**
- (d) List any **SIX** operating theatre equipment **(6 marks)**
- (e) By tabulation, compare and contrast any **FIVE** points between a major and minor operating theatres. **(10 marks)**

QUESTION TWO

- (a) Use a labelled sketch diagram of an Automatic change over system of an operating theatre lamp to describe its operation **(12 marks)**
- (b) List any **TEN** requirements/recommendations of an operating theatre lamp **(8 marks)**

QUESTION THREE

In a Ten topics description, explain constructional requirements of an operating theatre. **(20 marks)**

QUESTION FOUR

- (a) During a certain HF electro surgery cutting procedure, a tissue of 250 Ohms resistance experienced a 90°C temperature rise during a current flow duration of 0.6 Seconds. Calculate the following:-
 - (i) The current density value in amperes
 - (ii) The active electrode contact field volumetric value in cm³
 - (iii) Electrons flow count during the procedure **(12 marks)**
- (b) Describe any **FOUR** causes of HF electro surgery burns. **(8 marks)**

QUESTION FIVE

- (a) In a graphical representations show the three waveforms generated from a RF electro surgical machine. **(6 marks)**
- (b) Explain the **THREE** HF electrical characteristics that are considered during surgical machine designing process. **(6 marks)**
- (c) Describe any **FOUR** HF surgical procedures selectable on a electro surgery equipment. **(8 marks)**