



MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

SECOND YEAR FIRST SEMESTER EXAMINATION DIPLOMA IN ELECTRICAL ENGINEERING

EED 202: ELECTRICAL PRINCIPLES III

DATE: 11/12/2017

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer Question One And Any Other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- (a) With an aid of a digram show the construction of high pressure mercury vapour lamp
(10 marks)
- (b) Define the following terms
- i) candela
 - ii) luminous flux
 - iii) luminous intensity
 - iv) illumination
 - v) luminous exitance (5 marks)

- (b) A lamp giving out 1200 lumens in all directions is suspended 8 meters above the working plane. Calculate the illumination at a point on the working plane 6 meters away from the foot of the lamp. (15 marks)

QUESTION TWO (20 MARKS)

- (a) Give four essentials of a good lighting scheme (4 marks)
- (b) What do mean by direct diffused and spread reflection. Explain using sketches and define the term reflection coefficient. (16 marks)

QUESTION THREE (20 MARKS)

Design a suitable lighting scheme for a factory 120mx40m with a height of 7m . illumination required is 60 lux .state the number of locations and mounting height of 40watts flourescent tubes giving 45lumens /watt.

Depreciation factor = 1.2 and utilization factor = 0.5 (20 marks)

QUESTION FOUR (20 MARKS)

- (a) With an aid of well labled adiagram, explain the operation of a flourescent bulb (12 marks)
- (b) Explain inverse squre law and cosine law as used in illumination. (8 marks)

QUESTION FIVE (20 MARKS)

- (a) With an aid of adiagram, discuss three types of transmission of light. (12 marks)
- (b) Give the functions of the choke and the starter in flourescent lamps. (4 marks)
- (c) Name two types of losses that constitute transformer iron losses. (4 marks)