



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF MATHEMATICS STATISTICS

SECOND YEAR FIRST SEMESTER EXAMINATION FOR
DIPLOMA IN BUILDING AND CIVIL ENGINEERING.

2707/206/WT: ELECTRICAL WORKSHOP TECHNOLOGY I

DATE: 31/8/2021

TIME: 2:30 – 5:30 AM

INSTRUCTIONS:

Attempt all of the following FIVE questions .

1.
 - (a)
 - (i) Define the term" wiring system". (2 marks)
 - (ii) State any four advantages of a trunking wiring system. (4 marks)
 - (b) Describe the following types of wiring systems ;
 - (i) PVC sheathed. (3 marks)
 - (ii) MIMS. (3 marks)
 - (c)
 - (i) Define the term ‘ a conductor joint ’ . (2 marks)
 - (ii) Describe the procedure for making a Telegraph joint for a single – core conductor. (6 marks)
2.
 - (a) Explain the following terms;
 - i) Sheathing
 - ii) Flexible cable. (4 marks)

- (b) State the following:
 - (i) any three advantages of a MIMS Wiring System . (3 marks)
 - (ii) Any three advantages of a class B metal conduit system. (3 marks)
 - (c) Describe the Holger Nielsen method used as a first aid treatment to victims of electric shock in an electrical workshop. (6 marks)
 - (d) State any four purposes of installing bare and lightly insulated conductors as a wiring system in buildings. (4 marks)
3. (a) Explain any three factors to consider when choosing the type of wiring system to be installed. (6 marks)
- (b) Explain two methods for the protection against the risk of an electrical shock . (4 marks)
- (c) (i) Define the terms ' safety ' with regard to an electrical workshop.
- (ii) Explain the term ' soldering ' as a material jointing process. (4 marks)
- (d) State the following:
- (i) Any three advantages of welding as a material jointing process .
 - (ii) Any three advantages of brazing compared to welding. (6 marks)
4. (a) Define the following terms;
- (i) Wiring Accessory
 - (ii) Ceiling rose. (4 marks)
- (b) State the following:
- (i) Any four properties of copper as a conductor material. (4 marks)
 - (ii) Any three advantages of aluminum as a conductor material. (3 marks)
 - (iii) Any three methods of conductor identification. (3 marks)
- (c) State the following
- (i) Any three safety requirements to be observed against an electric shock in an electrical installation. (3 marks)
 - (iii) Any three advantages of a non-metallic conduit wiring system. (3 marks)

5. (a) Describe with the aid of a labeled diagram the construction of a 2 – core Paper-insulated lead – sheathed steel – wire armoured cable. (7 marks)
- (b) Define the following terms:
- (i) A Cable
- (ii) A Conductor. (4 marks)
- (c) Describe the following types of jointing methods
- i) Welding.
- ii) Clamping . (6 marks)
- (d) State any three advantages of butyl rubber as an insulation material of cable conductors. (3 marks)