



JARAMOGI OGINGA ODONGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS FOR THE DEGREE IN SCIENCE IN CONSTRUCTION
MANAGEMENT**

3RD YEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TCM 3314

COURSE TITLE: BUILDING SERVICES II

EXAM VENUE: STREAM: BSc CONSTRUCTION MGT

DATE: ../12/2018 EXAM SESSION:

DURATION: 2 HOURS

Instructions

- 1. Answer question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

1. (a) With the aid of sketches explain how a three phase power supply is generated
(6 marks)
- (b) Briefly explain the details involved in the planning process of electrical wiring work.
(8 marks)
- (c) Explain why it is more convenient to distribute alternating current (AC) than a direct current (DC).
(4 marks)
- (d) With the aid of a sketch show a single lighting point controlled by a one way switch.
(4 marks)
- (e) An alternating current completes 5 cycles in 8 ms. Calculate its frequency.
(5 marks)
- (f) Outline the THREE types of impellers.
(3 marks)
2. (a) Outline the FOUR principles involve in pumps.
(4 marks)
- (b) With the aid of a diagram explain the working principle of a centrifugal pump.
(8 marks)
- (c) Three loads, each of resistance 30Ω , are connected in star to a 415 V, 3 phase supply. Determine
 - (i) The system phase voltage
 - (ii) The phase current
 - (iii) The line current.
(8 marks)
3. (a) Explain the following terms as applied to fire protection
 - i) Fire resistance
 - ii) Fire load

- iii) Fire stop
- iv) Primary fire fighting. (8 marks)
- (b) Outline any FOUR causes of smoky in chimneys. (4 marks)
- (c) With the aid of sketches, explain the following fire fighting equipments
 - i) Sprinkler
 - ii) Foam extinguishers. (8 marks)
- 1. (a) Outline the FOUR basic principles in deciding the functionality of lifts and escalators. (4 marks)
- (b) Explain any TWO elements involved in the planning and design factors in lifts and escalators, giving at least TWO examples in each case. (6 marks)
- (c) List any FOUR types of lifts. (4 marks)
- (d) With the aid of a sketch show power flow through a typical elevator. (6 marks)
- 5. (a) With the aid of sketches differentiate between a radial and a ring circuit connection. (6 marks)
- (b) Explain any TWO functions of isolation and switching system in a circuit. (4 marks)
- (c) Explain the use of surge protection device (SPD). (2 marks)
- (d) Explain the following mechanical ventilation systems.
 - i) Extract
 - ii) Supply
 - iii) Balanced. (6 marks)
- (e) List any TWO advantages of a centrifugal pump. (2 marks)

