



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

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

3RD YEAR 1ST SEMESTER 2017/2018 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TCM 3314

COURSE TITLE: BUILDING SERVICES II

EXAM VENUE: LR 5

STREAM: BSc CONSTRUCTION MGT

DATE: 12/12/2017

EXAM SESSION: 9.00 -11.00 AM

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 show up to distribution box
- i) A single phase supply with nominal voltage of 230 V
 - ii) A three phase supply with nominal voltage of 400 V (6 marks)
- (b) Briefly explain the details involved in the planning process of electrical wiring work. (8 marks)
- (c) List any FOUR features of electrical wiring system. (2 marks)
- (d) With the aid of a sketch show a single lighting point controlled by a one way switch. (4 marks)
2. (a) With the aid of sketches differentiate between a radial and a ring circuit connection, stating the advantage of a ring circuit over a radial one. (10 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) Outline any FOUR factors that contribute to cable carrying current. (4 marks)
3. (a) Define a pump as used in water supply. (2 marks)
- (b) Outline the FOUR principles involve in pumps. (4 marks)
- (c) List any FOUR advantages of centrifugal pumps. (2 marks)
- (d) With the aid of a diagram explain the working principle of a centrifugal pump. (8 marks)
- (e) What are the power requirements for pumping 450lts/min against a head of 50M, assuming a pump efficiency of 65%. (4 marks)

4. (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)
5. (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)