



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIFTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (CIVIL ENGINEERING)

ECV 520: URBAN TRAFFIC MANAGEMENT

DATE: 19/10/2020

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

- *This paper comprises five questions*
- *Answer question number one and any other two questions*
- *All the optional questions carry equal marks*
- *Candidates to have relevant design manuals*

QUESTION ONE (COMPULSORY) (30 MARKS)

- Explain two (2) recommended criteria for the activation of a reversible lane system in a road section (4 marks)
- Describe the use of traffic lights on the roads/intersections (3 marks)
- In relation to traffic management, define the term Grade separation (5 marks)
- List and elucidate three (3) types of Grade Separation in respect of traffic Management. (6 marks)
- List five (5) types of on-street parking (5 marks)
- List 10 Risk factors influencing crash involvement (5 marks)
- Explain why public health approach is a useful framework in dealing with road safety issues (2 marks)

QUESTION TWO (20 MARKS)

- a) Describe five (5) types of on-street parking (10 marks)
- b) Outline Peripheral Parking and its advantages (10 marks)

QUESTION THREE (20 MARKS)

Explain Automated Parking System (APS)

QUESTION FOUR (20 MARKS)

Transport related environmental pollution has many faces, but two of them are especially onerous: emission of harmful compounds of exhaust gases and vibroacoustic effects with particular significance to noise.

- a) Explain these two environmental pollution phenomena (10 marks)
- b) Discuss two (2) design factors to mitigate harmful effects for each one of the two environmental pollution phenomena in 4.a) above (10 marks)

QUESTION FIVE (20 MARKS)

Outline five (5) risk factors for road traffic injuries