



UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : ROAD SAFETY ENGINEERING
COURSE CODE : BFT 40603
PROGRAMME CODE : BFF
FINAL EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

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- Q1** (a) Malaysia is facing serious road accidents problem. Every year for the last 5 years, more than 6000 people were killed on the road. Briefly explain the main factors that contribute to road accident. (6 marks)
- (b) There will be several affected regarding Road accident, please list and briefly explain the affect from the road accidents. (4 marks)
- (c) Human factor is main contribution in road accident. Cause of an accident might come from driver, List and explain **FOUR (4)** errors do drivers make. (4 marks)
- (d) Environment factor is the secondly main contributing factors of road accident after human factor and this factor typically being catered by a Civil Engineer. Explain **THREE (3)** elements in environment factor. (6 marks)
- (e) Signboard in **FIGURE Q1(e)** showed that Speed limit in Malaysia. Discuss what is speed limit and design speed. (5marks)
- Q2** (a) Describe blackspot area by Highway Planning Unit. (8 marks)
- (b) Explain briefly blackspot ranking by using the accident map and accident point techniques. (6 marks)
- (c) Johor Bahru – Melaka Federal Road (F005) is known as accident prone area in Johor State. As traffic safety engineer, you have to carry out accident data analysis based on given accident data record in **TABLE Q2(c)(i)**. Fill in **TABLE Q2(c)(ii)** by calculating:
- (i) Total number of accident (3 marks)
- (ii) Accident Point Weightage (APW) (6 marks)
- (iii) Rank (2 marks)
- Q3** (a) The site visit is a very important element of any accident investigation. Explain the main purpose of preliminary visit. (6 marks)

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- (b) Explain the needed to conduct a traffic conflict study during in-depth site investigation.
(5 marks)
- (c) **TABLE Q3(c)** shows the number of accident at blackspot and control site with the remedial treatment. Determine the effectiveness of remedial treatment.
(3 marks)
- (d) List **SIX (6)** steps for blackspot diagnosis and treatment framework.
(6 marks)
- (e) Explain **FIVE (5)** principles whereby road safety engineer should be always considered in treating any blackspot location.
(5 marks)

Q4 In Road Safety Plan Malaysia 2014-2020 under 2nd Strategy Pillar was Road Safety Audit (RSA). Road Safety Audit (RSA) is a relatively new road engineering technique aimed at identifying potential safety problems during the planning and designing of projects. If applied to existing roads, RSA can identify potential safety hazards along roads before they become accident prone locations. RSA would cover all roads in the country.

- (i) Define Road Safety Audit.
(4 marks)
- (ii) There is 5 STAGES in Road Safety Audit that been using in Malaysia, Explain each **ONE (1)** of the stages.
(5 marks)
- (iii) **FIGURE Q4 (iii)** been take during auditing for RSA, the auditor should be identifying the audit items. Please explain the general item to check and the geometric design elements during stage 3.
(6 marks)
- (iv) As the developing country, Malaysia still upgrading the level of transportation especial road network. To achieve that Malaysia will upgrading and building a new road referring to the needed. As traffic engineer what should you do if the alignment road that you will construct are mix within new and upgrading existing road? Describe RSA stages that involve in your construction and explain each one of the stages.
(6 marks)
- (v) **FIGURE Q4 (v)** was taken during RSA stage 5 (Audit Of Existing Roads). Describe the observed that you can identify by referring to this picture.
(4 marks)

- END OF QUESTIONS -

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TABLE Q2(c)(i)

Rating	Point
Maut (fatal)	6
Cedera Parah (Serious injury)	4
Cedera Ringan (slight injury)	2
Kerosakan kenderaan (damage)	1

TABLE Q2(c)(ii)

Section	Fatal	Serious injury	Slight injury	Total of accident	APW	Rank
122	3	2	13			
137	3	1	4			
93	2	2	20			
101	4	0	5			
123	2	1	20			
120	3	0	11			

TABLE Q3(c)

	No. of accident	
	Blackspot	District
Before (3 years)	30	120
After (3 years)	38	180

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