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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2014/2015**

COURSE NAME : CONSTRUCTION TECHNOLOGY II
COURSE CODE : BPD 22203
PROGRAMME : 2 BPC
EXAMINATION DATE : DECEMBER 2014/JANUARY 2015
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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- Q1** Road provides a traffic space to overcome any geographic restraints and its construction process involves a soil surface changes, bridges and tunnels construction, and also vegetation changes. Figure **Q1** in Appendix I illustrates a cross section of a proposed road project.
- (a) Discuss the preliminary works that are required to be done for the project prior to commencing the road construction. (6 marks)
 - (b) Analyse with the aid of sketches, the complete construction process of an appropriate road type if the budget for the project is limited. (14 marks)
- Q2** Heavy construction mainly involves the preparation and construction of commercial and institutional building and structure. It includes the construction of dam, tunnel, high rise building, and bridge. The construction of heavy construction building and structure requires the use of heavy machinery and equipment.
- (a) Explain **TWO (2)** differences between light and heavy construction. (4 marks)
 - (b) Discuss **FOUR (4)** modes of operation for SMART tunnel in Kuala Lumpur. (8 marks)
 - (c) Compare **TWO (2)** categories of heavy construction equipment that are used in the construction industry. (8 marks)
- Q3** Figure **Q3** in Appendix II shows a six-storey apartment building plan. The apartment has a similar floor plan layout at each level and the water pressure for the building is low. The Figure **Q3** also depicts the sewerage line from the building to public sewer line.
- (a) Illustrate a schematic drawing of water plumbing system for the building. (6 marks)
 - (b) Analyse with the aid of sketches, the complete construction process of sewerage system for the apartment from point A, B, and C to point D. (14 marks)

- Q4** Industrialised Building System (IBS) is a construction technique in which components are manufactured in a factory, on or off site, positioned and assembled into a structure with minimal additional site works. The IBS is sometime associated with an open building system.
- (a) Explain the concept of open building system. (4 marks)
 - (b) Discuss **THREE (3)** advantages of using precast concrete product of IBS to a heavy construction. (6 marks)
 - (c) Describe **FIVE (5)** methods to improve the application of IBS amongst Malaysian contractor companies. (10 marks)
- Q5** Bridge is a structure that spans horizontally between supports, whose function is to carry vertical loads. The spans between supports must be strong enough to carry the loads and are generally made as short as possible.
- (a) Discuss **FIVE (5)** factors which influence the choice of bridge span. (10 marks)
 - (b) Explain with the aid of sketches, the complete construction process of a concrete beam and slab bridge for 216m width of waterways. (10 marks)

-END OF QUESTION-

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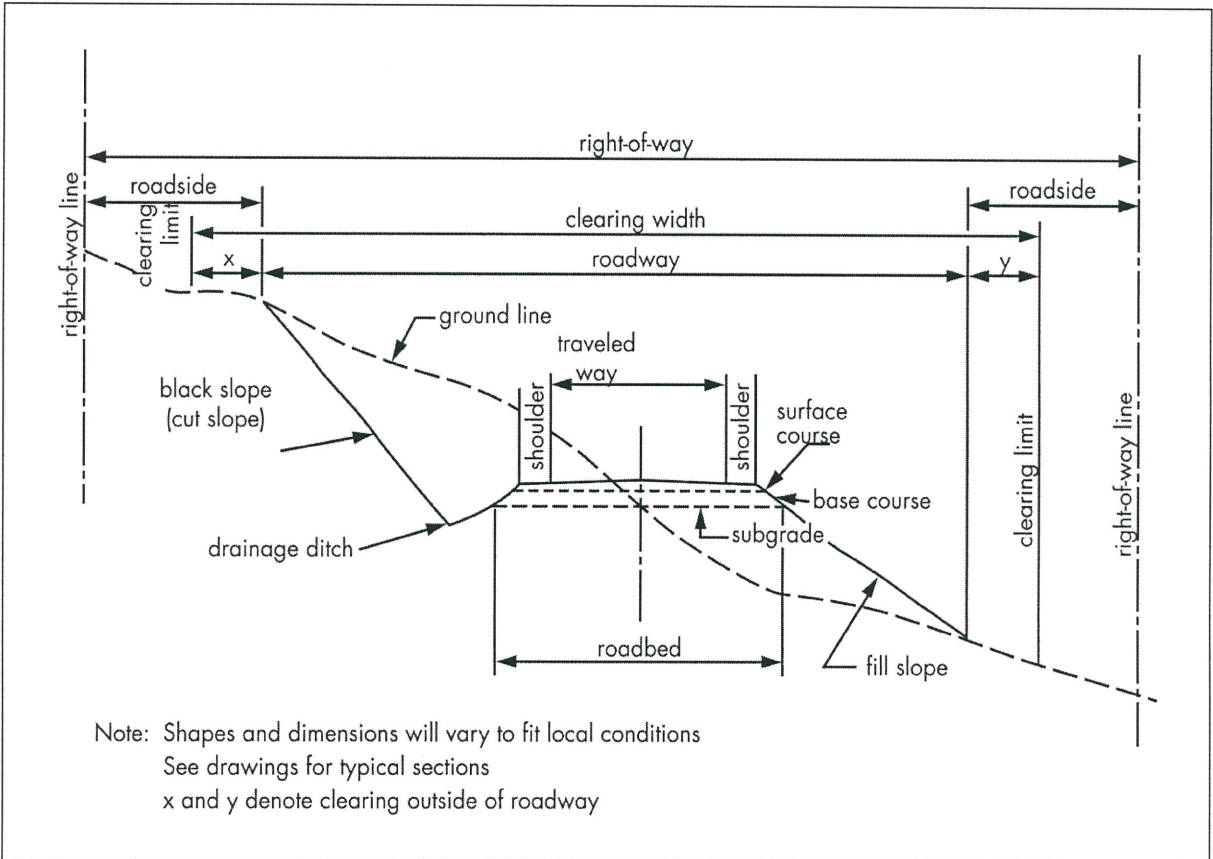


FIGURE Q1

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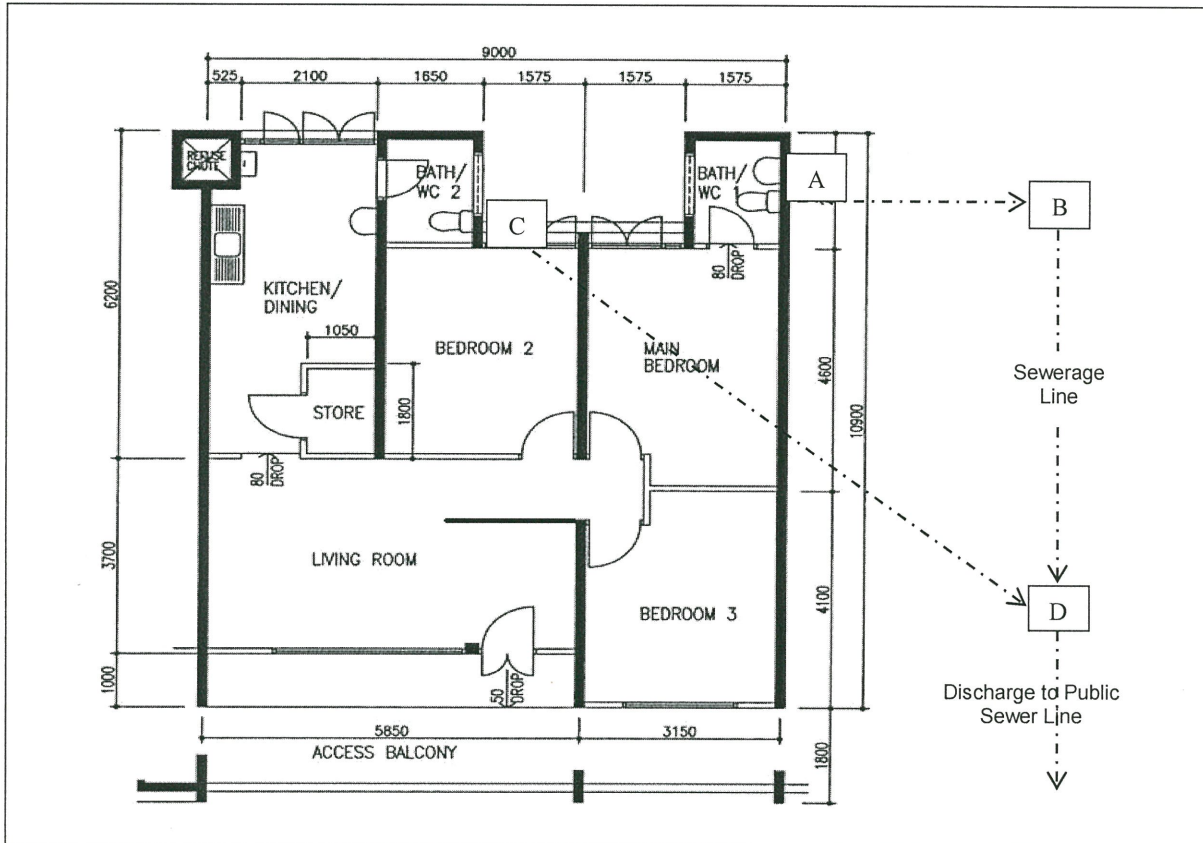


FIGURE Q3