# UTHM
Universiti Tun Hussein Onn Malaysia

# UNIVERSITI TUN HUSSEIN ONN MALAYSIA

## FINAL EXAMINATION
## (TAKE HOME)
## SEMESTER I
## SESSION 2020/2021

| | | |
|---|---|---|
| COURSE NAME | : | RAILWAY TECHNOLOGY AND APPLICATIONS |
| COURSE CODE | : | BNT 42103 |
| PROGRAMME CODE | : | BNT |
| EXAMINATION DATE | : | JANUARY / FEBRUARY 2021 |
| DURATION | : | 4 HOURS |
| INSTRUCTION | : | ANSWER **ALL** QUESTIONS. **OPEN BOOK EXAMINATION** |

TERBUKA

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

**Q1**     (a)     In general, rail systems can be classified into several categories. Then, each category is further divided into various requirements. All these categories have a specific purpose

        (i)     List all railway systems available

(4 marks)

        (ii)    Classification based on functionality is one of the categories of rail systems available. List all railway systems classified under this classification.

(6 marks)

        (iii)   Explain **TWO (2)** railway systems that have been stated in **Q1(a)(ii)** and give a comparison with the existing systems in our country.

(8 marks)

    (b)     SWOT Analysis is a method of analysis that is closely related to the life cycle process in the railway transportation.

        (i)     Explain what is meant by SWOT Analysis

(3 marks)

        (ii)    Briefly explain the function of SWOT Analysis in the planning stage in railway transportation life cycle process.

(4 marks)

**Q2**     (a)     Tunneling work is an important stage in the railway construction. There are several methods to perform this tunneling work. Technology in this field is also constantly evolving over time.

        (i)     Explain the concept of Drilling and Blasting Method

(4 marks)

        (ii)    Explain the concept of Tunnel Boring Machine (TBM)

(4 marks)

        (iii)   Compare between method in **Q2(a)(i)** and **Q2(a)(ii)** in term of concept, suitabality, location and method of execution

(12 marks)

        (iv)    Explain **FOUR (4)** risk and hazard in tunneling work and the control measures.

(5 marks)

TERBUKA

**Q3**    (a)    As a Project Scheduler for a Railway Development Project, you have been given a task to perform a work scheduling using the Critical Path Method (CPM).

(i)    Show your CPM network, analyze and calculate the sequence of each activities given in **Table Q3(a)(i).**

(20 marks)

(ii)    Show the critical path of the overall activities

(2 marks)

(iii)    Calculate the overall project duration

(3 marks)

-   **END OF QUESTIONS**  -

3                              **CONFIDENTIAL**

**FINAL EXAMINATION**

SEMESTER / SESSION : SEM I / 2020/2021          PROGRAMME CODE  : BNT
COURSE NAME          : RAILWAY TECHNOLOGY AND      COURSE CODE      : BNT 42103
                       APPLICATIONS

**Table Q3(a)(i) : Sequence of Activities**

| Activities | Durations (Days) | Precedence (Start to Finish) |
|---|---|---|
| A)Move in | 1 | |
| B)Site clearance | 7 | A |
| C)Lay out work | 4 | A |
| D) Spread sand | 3 | C |
| E) Demolition existing building | 5 | C |
| F) Bring in fill | 6 | B,C |
| G) Securityfence | 7 | D, E |
| H) Build walkway | 10 | D |
| I) Pave Parking Lot | 6 | G,J |
| J) Finish Grade | 5 | F |
| K) Set Flagpole | 2 | G, H |
| L) Move out | 2 | I,K |