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**FEDERAL UNIVERSITY OF TECHNOLOGY MINNA  
SCHOOL OF ENVIRONMENTAL TECHNOLOGY  
DEPARTMENT OF QUANTITY SURVEYING  
FIRST SEMESTER EXAMINATION 2018/2019**

COURSE CODE: QTS 415

COURSE TITLE: CIVIL ENGINEERING CONSTRUCTION II

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER 3 QUESTIONS

TIME: 2hrs.

**Question 1:**

A. with the aid of diagram only, explain the following:

- i. Turnout with switch rails,    ii. Tandem turnout or threeway
- iii. Crossover,    iv. Diamond crossing, and v. Frog or common crossing.

B. Write short notes on Rail, Ballast and Sleeper

**Question 2:** In a tabular form explain the hazard and the corresponding precaution in the use of conveyor system in mucking out operation in tunnel.

**Question 3:** While dealing with any question asking for "Control Measure" always remember the hierarchy of control measures. List and explain briefly the five (5) hierarchy of control measures.

**Question 4:**

A. Explain the statement; "The floor of the dock must in addition to resisting uplift be strong enough to distribute a ship load".

B. what can be done when sufficient dead weight load cannot be introduced into construction of a dock?

**Question 5:**

A. Explain the term Marine Work.

B. Explain the following in term of Marine work:

- i. Wharves, ii. Jetties iii. Dolphins and iv. Fenders