PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech. Summer 2018– 19 Examination

Semester: 2   Date: 13/05/2019
Subject Code: 203215183   Time: 10:30 AM TO 1:00 PM
Subject Name: Earth Retaining Structures   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1	A) Objectives of braced cuts.	(05)
	B) Illustrate Lateral earth Pressure on Sheeting?	(05)
	C) Explain method of Tunneling In Stratified Rock And Blocky Rock?	(05)

Q.2 **Answer the following questions**. (Attempt any three) (Each five mark)   (15)

    A) Detail explanation of Coulomb's earth pressure theory?
    B) Factors which designer need to take account for retaining wall. Draw typical diagram of retaining wall.
    C) Write down the theories of arching in soil?
    D) Classification of underground conduit?

Q.3 A) Write down Method Of braced cut excavation?   (07)

B) A wall, 5.4 m high, retains sand. In the loose state the sand has void ratio of 0.63 and $\varphi = 27°$, while in the dense state, the corresponding values of void ratio and φ are 0.36 and 45°respectively. **(08)** Compare the ratio of active and passive earth pressure in the two cases, assuming G = 2.64

<div align="center">OR</div>

B) Draw flow chart of Types of retaining walls?   (08)

Q.4 A) A gravity retaining wall retains 12 m of a backfill, $\gamma = 17.7$ KN/m3 $\varphi = 25°$with a uniform horizontal surface.   Assume the wall interface to be vertical, determine the magnitude and point of application of the total active pressure. If the water table is a height of 6 m, how far do the magnitude and the point of application of active pressure changed   (07)

<div align="center">OR</div>

A) Explain Stresses around underground opening?   (07)

B) A smooth backed vertical wall is 6.3 m high and retains a soil with a bulk unit weight of 20 KN/m3 and $\varphi = 21°$. The top of the soil is level with the top of the wall and is horizontal. If the soil surface carries a uniformly distributed load of 45 KN/m2, determine the total active thrust on the wall per lineal meter of the wall and its point of application.   (08)