

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (2012 to 2017) (Sem.-6)

FOUNDATION ENGINEERING

Subject Code : BTCE-603

M.Code : 71084

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1) Answer briefly :

- Write briefly about displacement piles and non displacement piles.
- What is negative skin friction?
- What do you understand by isobar and pressure bulb?
- Which type of roller is best used for compacting sub grade of high plastic clays?
- Give complete names of soil groups : SM , GW-GM
- How can we determine scour depth?
- If $w = 40\%$, $G = 2.71$. Calculate γ_{sat} , γ_{dry} in KN/m^3 .
- Draw typical stress strain curve for sandy soils.
- Distinguish between ultimate bearing capacity and safe bearing capacity.
- Define inside Clearance and outside clearance in soil sampling.

SECTION-B

- 2) What are the advantages and disadvantages of plate load test?
- 3) A rectangular foundation $2\text{m} \times 3\text{m}$ transmits a pressure of 360 kN/m^2 to the underlying soil. Determine the vertical stress at a point 1 meter vertically below a point lying outside the loaded area, 1 meter away from a short edge and 0.5 meter away from a long edge.
- 4) List the assumptions made in Terzaghi's bearing capacity theory.
- 5) Give the structure and characteristics of montmorillonite clay minerals.
- 6) For flow perpendicular to stratification in soils how is equivalent permeability calculated. Derive the relevant expressions.

SECTION-C

- 7) Write short notes on the following :
 - a) Zero air void line and its significance.
 - b) Logarithmic time fitting method.
- 8) List and briefly explain the different types of machine foundations. Illustrate with neat diagrams.
- 9) A 60 m high tower rests on 3 legs which form an equilateral triangle of sides 8m each. The load coming on each leg may be considered as equivalent to a 300kN point. Using Boussinesq's theory compute the vertical stress increase at a point 2m deep vertically below one of the legs.

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.