JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- FEB-2023

COURSE CODE(CREDITS): 18B11CE411 MAX. MARKS: 15

COURSE NAME: Geotechnical Engineering

COURSE INSTRUCTORS: Prof. Ashok Kumar Gupta MAX. TIME: 1 Hour

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Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

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[1] Derive the relationship for unit weight of soil 'γ' as given below: **[4]**

$$\gamma_{sat} = \frac{\gamma_w (G+e)}{(1+e)} \quad , \quad e = \frac{wG}{S}$$

[2] For a moist soil sample, the following are given:

$V = 1.2\ m^3$

$M = 2350\ kg$

$w = 0.086$

$G_s = 2.71$

Determine moist density, dry density, void ratio, porosity, degree of saturation and volume of water in the soil sample. **[3]**

[3] A soil sample was sieved in Geotechnical engineering laboratory and following readings were recorded:

Sieve size, mm	weight retained, gm
4.75	117.0
2.36	63.4
1.18	68.8
0.60	48.2
0.30	38.1
0.15	31.2