

2020

**GEOLOGY — HONOURS — PRACTICAL**

**Paper : CC-12P**

**Full Marks : 30**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. In a 2m rock run the following rock pieces (in mm) were recovered from a bore hole :  
60, 123, 110, 72, 130, 290, 92, 150, 52, 113.

Find the RQD and the rock recovery.

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2. The moist unit weight of a soil is  $16 \text{ kN/m}^3$ . Given that the  $w = 15\%$  and  $G_s = 2.69$ , find

(a) dry unit weight

(b) porosity

(c) degree of saturation, and

(d) mass of water that must be added to reach full saturation.

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3. The lowest portion of the capacity-elevation curve of a proposed irrigation reservoir, draining  $30 \text{ KM}^2$  of catchment, is represented by the following data :

Elevation (m)	Capacity (ha.m)
RL 600	24.2
602	26.2
604	28.2
606	35.2

The rate of silting has been assessed to be  $350 \text{ m}^3 / \text{km}^2 / \text{yr}$ . Assuming the life of the reservoir to be 60 yrs,

compute the dead storage, and the lowest sill level (LSL) if the main canal is 7 km long with a bed slope of 1 in 1000, and the canal bed level at the tail end is at RL 594 m.

The FSD of the canal at the head is 80 cm. The crop water requirement is 250 ha.m.

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