*Total number of printed pages:***01** **PG/2nd/PCEW202**

2021

HYDRAULICS OF SEDIMENT TRANSPORT

Full Marks: 60

Time: Two hours

The figures in the margin indicate full marks for the questions.

A. Answer the following.

1	a.	What do you mean by threshold velocity?	2
	b.	Discuss in details about the threshold bed shear stress concept based on shields approach with appropriate figure.	8
2.	a.	Discuss various modes of sediment transport.	5
	b.	Derive the mathematical expression for advection-diffusion equation of suspended sediment motion.	10
3.	a.	Write in details about various types of bedforms. Draw the necessary figures.	10
	b.	Determine the terminal fall velocity w_s in water for a spherical particle with diameter of 5 mm. The relative density of sediment is measured as 2.65. Consider g = 9.81 m/s^2 and ν for a clear water = 10^{-6} m^2/s.	5

B Write in details (*draw the figure, if necessary*). 4*5=20

1. Angle of repose
2. Concept of meandering
3. Scour below drop structures
4. Continuity equation of sediment transport