Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2020 (ONLINE MODE)

Course: Design of Flexible and Rigid Pavements -IRC codes **Semester: VIII**
Program: B Tech Civil Engineering **Time 03 hrs.**
Course Code: CEEG 472 **Max. Marks: 100**
Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Flexible pavements will transmit _____load stresses to the ____ layers by ____-to-____ transfer through the points of _____ in the granular structure.	**5**	**CO1**
Q 2	a. Rigid pavements have sufficient _____strength to transmit the ____ load stresses to a ____area below. (3 marks) b. In _____ pavement, _____ is distributed by the slab action. (2 marks)	**5**	**CO2**
Q 3	_____, _____, _____, _____ and _____ are rigid pavement construction equipment.	**5**	**CO3**
Q 4	_____, _____, _____, _____ and _____ influence the performance of a pavement.	**5**	**CO4**
Q 5	Flexible pavement is designed with necessary information like _____, _____, _____, _____ and _____.	**5**	**CO1**
Q 6	a. _____, _____, and _____ are critical load positions in rigid pavement. b. The cement concrete slab is assumed to be_____ and to have _____ elastic properties.	**5**	**CO2**

SECTION B

Q 7	An Engineer has designed flexible pavements at two different locations with the following thickness of layers, comment on their probable MSA, CBR value and location of the road. Location 1: SDBC is 25 mm, DBM is 50 mm, G. Base is 250 mm and GSB is 150 mm Location 2: DBC is 40 mm, DBM is 120 mm, G Base is 250 mm and GSB is 380 mm	**10**	**CO1**

Q 8	Calculate the difference in the weight per square meter of two slabs of varying properties, Slab1: thickness 25 cm, density of concrete is 2400 kg per cubic meter, Slab2: thickness 20 cm, density of concrete is 2500 kg per cubic meter.	**10**	**CO2**
Q 9	Describe WBM road construction in 8 steps.	**10**	**CO3**
Q 10	List the types of cracking in Flexible pavement and explain the cause of any one failure.	**10**	**CO4**
Q 11	List the steps in cement concrete roads construction.	**10**	**CO3**
SECTION-C			
Q 12	a) Comment on the effect of terrain on vehicle damage factor with the following data: Rolling/ plain- 1.5, 3.5 and 4.5, Hilly – 0.5, 1.5 and 2.5. b) "Six different zones of the country play an important role in the design of rigid pavement" – Justify the statement. c) Compare the description, the possible cause and remedial measure of mud pumping and spalling in concrete pavements.	**5+5+10**	**CO1, CO2, CO4**