Sanjay Ghodawat University, Kolhapur

2018-19

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SGU

Year and Program:2018-19   School of Technology   Department of Civil Engg. (B.Tech)

Course Code: CET 213   Course Title: Transportation Engineering-I   Semester – IV

Day and Date Thursday 23ʳᵈ May, 2019   End Semester Examination (ESE)   Time: Max Marks: 100 (10.30 am to 1.30 pm)

Instructions:
1) All questions are compulsory.
2) Assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

Q.1		Solve the following questions.	Marks	Bloom's Level	CO
	a)	Describe the scope of highway engineering.	07	L_2	CO1
		OR			
	a)	How are roads classified according to Nagpur road plan?	07	L_2	CO1
	b)	Calculate the SSD on a level road for design speed of 50 kmph for (a) 2way traffic on 2 lane road (b) 2way traffic on single lane road. Assume coefficient of friction as 0.37 and reaction time as 2.5 seconds	08	L_3	CO2
		OR			
	b)	Discuss the factors controlling highway alignment.	08	L_2	CO2
Q.2		Solve the following questions			
	a)	Calculate the stress at interior, edge, and corner regions of a cement concrete pavement using Westergaurds stress equations, use the following data:	07	L_3	CO3

Wheel load, P = 5100kg

E= 3×10^5 kg/cm^2,

Pavement thickness, h = 18cm,

Poisson's ratio, μ= 0.15,

Modulus of subgrade reaction, K = 6.0 kg/cm^3

Radius of contact area, a = 15cm

OR

| | a) | Draw a neat sketch of flexible pavements cross-section and explain the | 07 | L_2 | CO3 |

function of each layer.

	b)	Enlist the test carried out on aggregates and explain any one in detail.	08	L₄	CO4

<div align="center">OR</div>

	b)	With a neat sketch write the construction procedure for WBM road.	08	L₂	CO4
Q.3		**Solve any Two**			
	a)	Explain types of road patterns with advantages and disadvantages.	08	L₂	CO1
	b)	The speeds of overtaking and overtaken vehicles are 70 and 40 kmph. If acceleration of overtaking vehicle is 0.99m/sec². calculate the safe OSD for	08	L₃	CO2

1. Calculate the safe OSD
2. Min length of overtaking zone
3. Draw neat sketch of overtaking zone with position of sign posts.

	c)	Explain the factors involved in the design of flexible pavements.	08	L₂	CO3
	d)	Enlist and explain the types of joints in cement concrete pavement.	08	L₂	CO4
Q.4		**Solve any Two**			
	a)	Explain the general causes of pavement failure and briefly explain need of highway maintenance.	09	L₃	CO5
	b)	Enlist and explain typical flexible pavement failure.	09	L₃	CO5
	c)	Explain surface and subsurface drainage system with neat diagram.	09	L₃	CO5
Q.5		**Solve any Two**			
	a)	Explain traffic characteristics in detail.	09	L₂	CO6
	b)	Explain the applications of O-D study. Explain any one method for collecting O-D data.	09	L₂	CO6
	c)	Enlist various traffic studies. Explain traffic volume studies.	09	L₁	CO6
Q.6		**Solve any Three**			
	a)	Write a note on various maintenance operations of highways.	06	L₂	CO5
	b)	What is pavement evaluation? Explain methods of pavement evaluation.	06	L₂	CO5
	c)	Write a detailed note on traffic signs.	06	L₂	CO6
	d)	Explain the use of traffic signals with advantages and disadvantages.	06	L₂	CO6

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