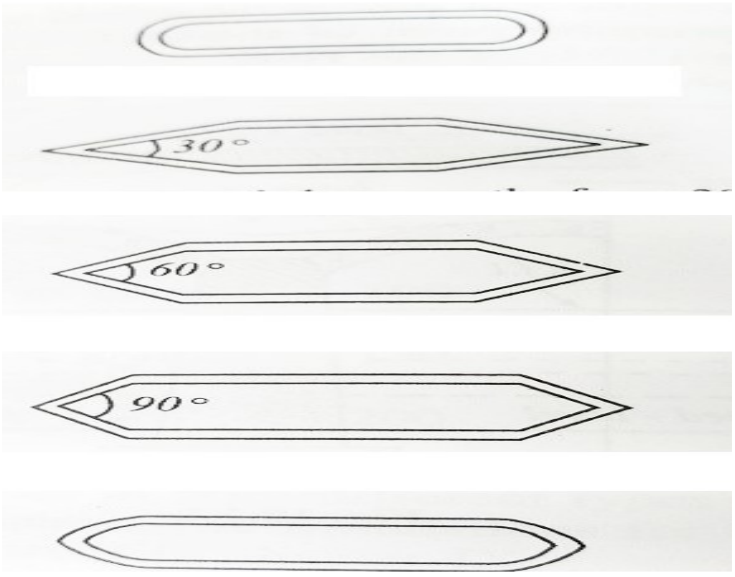
Roll No: ----------

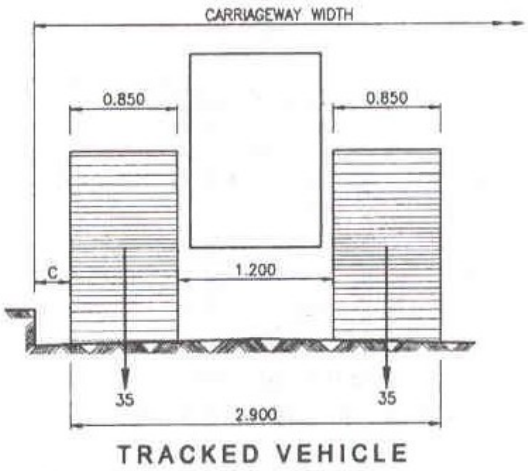
UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B Tech Civil Engg | **Semester – I**
Subject (Course): Transportation Engg-3 | **Max. Marks : 100**
Course Code : CEEG 431 | **Duration : 3 Hrs**
No. of page/s: 02

	Section A (Attempt all questions)		
1.	Categorize obstacles in vehicular movement.	5	CO1
2.	Calculate the height of the horse shoe tunnel having a diameter of 10 ft	5	CO2
3.	Enumerate the forces which act on the abutment with a neat diagram	5	CO4
4.	Name the piers 	5	CO5
	SECTION B (Attempt all Questions)		
5.	Explain the uses of pilot tunnel	10	CO2
6.	Sketch a typical head frame and explain its use	10	CO3
7.	What are the common defects in arch bridges?	10	CO4
8.	Explain group action of piles and group efficiency of pile groups.	10	CO5

	SECTION C (Attempt any one of 9 & 11) 10 is compulsory		
9.	Find the dead load bending moment and shear force that can be expected on deck slab bridge for following data Assume missing data Clear span 7 meters Width of carriage way = 5.5 meters Width of footpath 500 mm on either side Assume suitable wearing coat Use M25 & Fe 415 Loading IRC 70 R tracked loading  TRACKED VEHICLE	20	CO4, CO5
10.	A. Critically review the methods normally used for the estimation of the design discharge at any bridge site B. Distinguish drilling patterns to be adopted in driving shafts in rock	20	CO6, CO3
11.	Give reasons for the following: 1) Horse shoe form of tunnel gives working space to the contractor 2) A tunnel is preferred on routes of strategic importance 3) The portals should be made massive in appearance 4) The circular section of tunnel is not suitable for roads or railways	20	CO2

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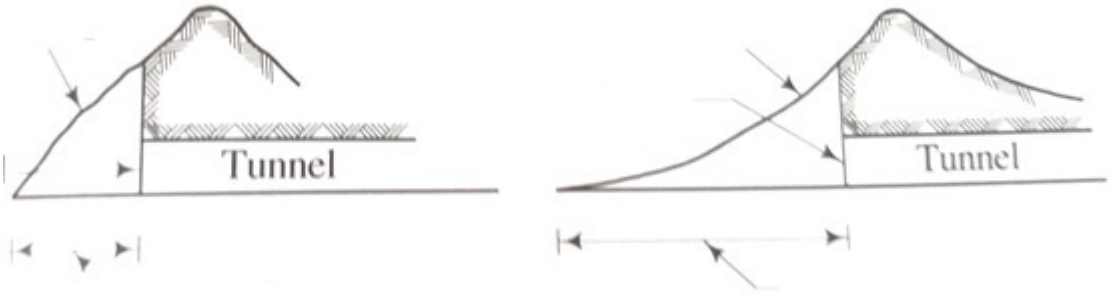
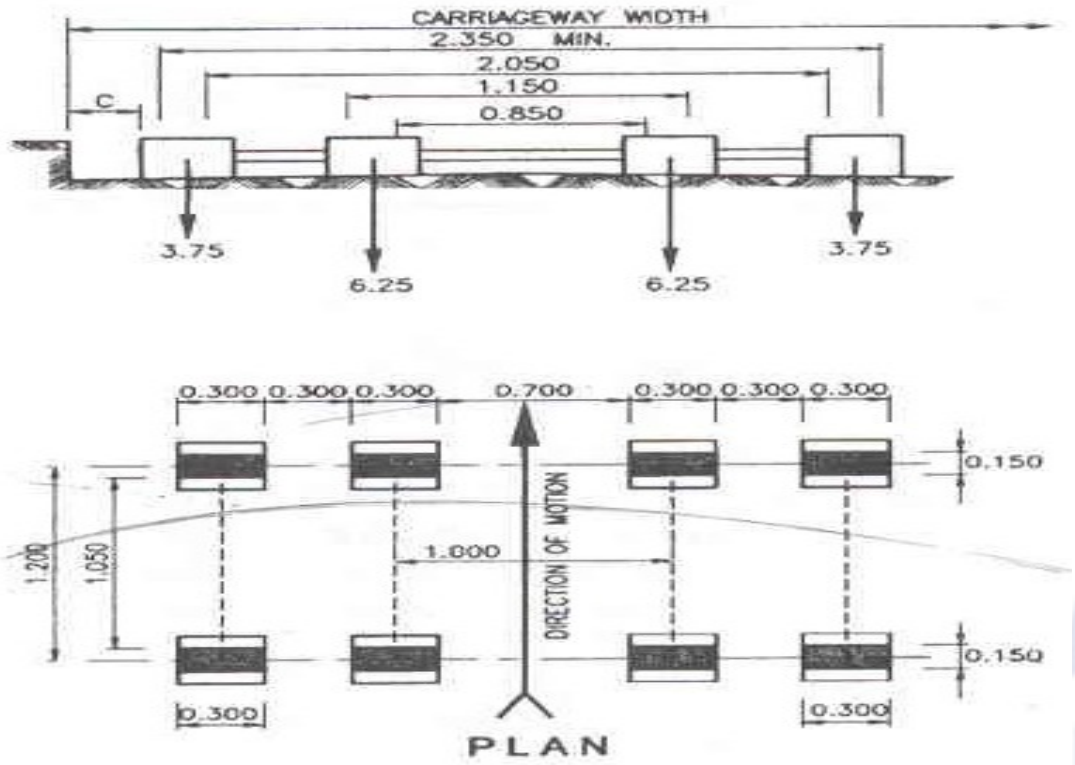
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B Tech Civil Engg — **Semester – VII**
Subject (Course): Transportation Engineering -3 — **Max. Marks : 100**
Course Code : CEEG 431 — **Duration : 3 Hrs**
No. of page/s: 03

	Section A (Attempt all questions)		
1.	 Label the figure near arrow marks	5	CO1
2.	Explain with a neat sketch the mountings that are used with a drill	5	CO
3.	Enumerate briefly the relative merits of suspension bridges as compared to other types of bridge	5	CO5
4.	Explain sheet piling technique	5	CO6
	SECTION B (Attempt all Questions)		
5.	What are the factors which determine the size of the tunnel? Explain necessary requirements for decision.	10	CO1
6.	Support the following statements with strong favoring arguments 1) A shield set for tunneling can be moved only in one direction 2) Tunneling with a shield in clayey soils requires gravel packing and grouting 3) A shield should be cylindrical in shape	10	CO2
7.	Explain the features of original bridge report	10	CO6
8.	Write a note on the choice of materials of bridge superstructures	10	CO5
	SECTION C (Attempt any one of 9 & 11) 10 is compulsory		

9.	 Draw the dispersion diagram for a clear span 6.5 m and 7.5 m carriageway width for the above class AA loading (wheeled) Assume missing data $b_{ef} = \alpha_a \left(1 - \frac{a}{lo}\right) + b_1$	20	CO4, CO5

	$\frac{b}{l_o}$	α for simply supported slab	α for continuous slab	$\frac{b}{l_o}$	α for simply supported slab	α for continuous slab		
	0.1	0.40	0.40	1.1	2.60	2.28		
	0.2	0.80	0.80	1.2	2.64	2.36		
	0.3	1.16	1.16	1.3	2.72	2.40		
	0.4	1.48	1.44	1.4	2.80	2.48		
	0.5	1.72	1.68	1.5	2.84	2.48		
	0.6	1.96	1.84	1.6	2.88	2.52		
	0.7	2.12	1.96	1.7	2.92	2.56		
	0.8	2.24	2.08	1.8	2.96	2.60		
	0.9	2.36	2.16	1.9	3.00	2.60		
	1.0	2.48	2.24	2 & above	3.00	2.60		
10.	A. If the designed maximum discharge in a large natural stream of an alluvial bed is 2500 cu mt /sec , calculate the linear waterway in meters, take the value of C in the formula L = C $\sqrt{Q}$ as 4.8. B. What is primary lining? Give a neat sketch of a section of this lining and explain why it is made so heavy?						20	CO4, CO2
11.	Give reasons for the following 1) When diameter of tunnel is 3 meter or above stiffening of liner plates becomes necessary 2) The tunnels driven by shields are usually of circular in cross section 3) Normally shafts are laid in vertical direction only 4) The majority of shafts are located directly over the center line of the tunnel						20	CO3