

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Supplementary Examination, July 2020

Programme Name: B. Tech Civil Engineering
Course Name : Transportation Engineering –II
Course Code : CIVL 3010
Nos. of page(s) : 02

Semester : VI
Time : 3 hrs
Max. Marks : 100

Instructions:

1. Attempt all questions within a section together.
2. Read and understand the requirement of all questions carefully and then start attempting them.
3. The content presented by you will be checked for plagiarism so make sure it is originally yours.
4. Enhance your answers with tables, neat and colorful sketches and bullet points. Avoid unnecessary content.

SECTION A (5 X 4 =20 Marks)

S. No.		Marks	CO
Q 1	Identify and briefly explain three key features of Indian Railways, which makes it superior from Railways of other countries.	4	CO1
Q 2	Outline various stages of evolution of different types of rails along with neat diagrams.	4	CO1
Q 3	Sketch a neat diagram of a turnout and explain its essential constituents.	4	CO2
Q 4	Compare the process of interlocking with old system of train reception. List down the two future positive aspects of interlocking for Indian Railways.	4	CO2
Q 5	Differentiate the two rail systems based on presence of only signalling in one rail system in comparison to other rail system, which uses both signalling and ABS together.	4	CO2

SECTION B (4 X 10 =40 Marks)

Q 6	Prepare a comparative table for various cost items for unit km length of both underground metro and elevated metro construction. Summarize your results in terms of which system you will recommend and why?	10	CO1
Q 7	A. How equilibrium speed and Max. Permissible speed play their part in value of super elevation. B. Calculate the super-elevation and maximum permissible speed for a 3 ⁰ BG transition curve on a high-speed route with a maximum sanctioned speed of 105 KM/hr. The speed for calculating the equilibrium super-elevation as decided by the chief engineer is 75 KM/hr and the booked speed of goods trains is 45 KM/hr. C. Why cant excess and cant deficiency has to be limited by design to certain value?	10	CO2
Q 8	Interpret the purpose of an optimum layout of an airport terminal building. Sketch a plan of a terminal building of built up area of 3000 m ² in such a way that it accommodates all	10	CO3

	<p>the constituents of an ideal airport terminal building. You need to be rational while providing the areas of various facilities.</p> <p style="text-align: center;">OR</p> <p>Outline 5 different imaginary surfaces of airport obstruction. Tabulate the characteristics and purpose of these imaginary surfaces. Draw neat sketches of these imaginary surfaces with proper naming of all the components.</p>		
Q 9	<p>Determine the radius of a taxiway for a supersonic aircraft to negotiate the curve at a turning speed of 60 KM/hr. The wheelbase is 30 m and the tread of main loading gear is 7m. The airport is of B Type as per ICAO. Assume coefficient of friction between tyre and pavement surface as 0.15 and width of taxiway pavement as 22.5m.</p>	10	CO4
SECTION-C (2 X 20 =40 Marks)			
Q 10	<p>A. Explain at least eight planning factors, which influence the Airport site selection. How can we ascertain that necessary environmental considerations have been addressed in the development of a new airport?</p> <p>B. How the Govt. Scheme “UDAN” is creating new opportunities for middle-income level populations enabling them to travel through low cost affordable air transportation services?</p>	4+8+8	CO3
Q 11	<p>A. Calculate the actual length of the runway from the following data: The Airport Elevation = R.L.100, Airport reference temperature is 28 degree Celsius. Basic length of the runway = 620m, highest point along the length = R.L. 97.5 and the lowest point along the length = RL 94.8.</p> <p>B. Compare various systems of Aircraft parking based on their advantages and disadvantages. Draw the positions of the aircrafts with respect to the Terminal building in each of the systems.</p> <p style="text-align: center;"><u>OR</u></p> <p>Write detailed note along with sketches for the following:</p> <ol style="list-style-type: none"> 1. Important Wind parameters in Runway orientation as a part of planning and design of Runway. 2. Types of Visual Aids: Marking and Lighting of the Runway and the Apron Area 	10+10	CO4