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M S RAMAIAH INSTITUTE OF TECHNOLOGY

(AUTONOMOUS INSTITUTE, AFFILIATED TO VTU)
BANGALORE – 560 054

SEMESTER END EXAMINATIONS – JANUARY 2016

Course & Branch	**: B.E.- Civil Engineering**	**Semester**	**: V**
Subject	**: Transportation Engineering - II**	**Max. Marks**	**: 100**
Subject Code	**: CV502**	**Duration**	**: 3 Hrs**

Instructions to the Candidates:

- Answer ***one*** full question from each unit.

UNIT – I

1.	a)	Briefly explain the factors affecting the selection of gauges in railways.	CO1	(10)
	b)	What is meant by hauling capacity of a locomotive? Explain the factors on which the coefficient of friction between the driving wheels and the rails depend. A locomotive on a MG track has three pairs of driving wheels each carrying 20 tonnes. What maximum load can it pull on a level track with curvature of 2° and at 50kmph?	CO2	(10)
2.	a)	With a neat diagram explain the typical cross section of a permanent way on a straight track in cutting for a double line.	CO2	(05)
	b)	Explain the coning of train wheels and tilting of rails with a neat sketch	CO1	(05)
	c)	Explain the important functions and requirements of good ballast.	CO1	(10)

UNIT – II

3.	a)	Explain the following terms with relevant expressions mentioning the limits wherever applicable: a) Grade Compensation b) Ruling gradient c) Momentum gradient d) Pusher or helper gradients e) Gradients at station yards	CO2	(10)
	b)	What is the necessity of points and crossings? With a neat diagram explain the component parts of a left hand turnout (split switch).	CO1	(10)
4.	a)	Define the following terms with relevant expressions wherever applicable: a) Equilibrium cant b) Cant deficiency c) Negative superelevation d) Points and crossings e) Turnout f) Heel divergence g) Flangeway depth h) Switch angle i) Throw of switch j) Check rails	CO1	(10)
	b)	List and explain the factors on which the safe speed of the train depends while negotiating a curve? If the ruling gradient is 1 in 150 on a particular section of BG track and at the same time a curve of 4 degree is situated on this ruling gradient, what should be the allowable gradient?	CO2	(10)

UNIT – III

5.	a)	What is meant by regional planning? Discuss in detail the data collected for a new airport for a scientific and sound planning on a regional basis.	CO3	(10)
	b)	The length of the runway under standard conditions is 1620m. The airport site has an elevation of 270m. Its reference temperature is 32.94°C. If the runway is to be constructed with an effective gradient of 0.2%, determine the corrected runway length. What are the factors which compel the adjustments in the runway orientation away from wind rose directions?	CO3	(10)
6.	a)	Explain the factors considered for the selection of a suitable site for an airport.	CO3	(10)
	b)	The runway length required for landing at sea level in standard atmospheric conditions is 3000m. Runway length required for take-off at a level site at sea level in standard atmospheric conditions is 2500m. Airport reference temperature is 25°C and that of the standard atmosphere at airport elevation of 150m is 14.025°C. If the effective runway gradient is 0.5% determine the runway length to be provided.	CO3	(10)

UNIT – IV

7.	a)	Explain the classification of harbors depending upon the utility and also mention their respective requirements.	CO4	(10)
	b)	What are the requirements of a good port? Explain.	CO4	(10)
8.	a)	With a neat sketch explain the typical layout of an artificial Hrbour. Discuss any six drawbacks of water transportation.	CO4	(10)
	b)	Discuss the facilities to be provided at major ports.	CO4	(10)

UNIT – V

9.	a)	Explain the systems approach to transport planning with a flow chart.	CO5	(10)
	b)	Write a brief note on ITS and it's applications in India.	CO5	(10)
10.	a)	Write brief notes on: a) Advantages of mass transport systems b) General transportation problems in urban centers	CO5	(10)
	b)	Explain briefly the stages in transport planning process.	CO5	(10)

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