Code No: RT32015 **R13** SET - 1

III B. Tech II Semester Regular/Supplementary Examinations, April - 2017

TRANSPORTATION ENGINEERING – II

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Define wheel gauge. What are the various gauges used in India?	[3M]
	b)	Determine the weighted average of speed when 10 trains moves with 80kmph, 5 trains with 85kmph, 15 trains with 90 kmph and 20 trains with 75kmph.	[4M]
	c)	Differentiate between Cole's method Isosless triangle methods?	[4M]
	d)	What are the various phases recommended by FAA for airport master plan?	[4M]
	e)	Mention about special characteristics and requirements of airport drainage.	[4M]
	f)	What is the location based classification of harbors?	[3M]

PART -B

2	a)	What is permanent way? Explain functions of various components briefly?	[4M]
	b)	Explain the concept creep using percussion theory? How do you rectify creep?	[8M]
	c)	Distinguish between suspended and bridge joints in rails.	[4M]
3	a)	What do you understand negative superelevation?	[3M]
	b)	Compute the maximum permissible speed for the following data on a curve of high speed B.G for the following data. Degree of curve = 1.2, Amount of super elevation = 8cm, Length of transition curve = 150 m, Maximum sanctioned speed likely to be 135kmph.	[8M]
	c)	Explain string line method of realignment of curves.	[5M]
4	a)	Explain the necessity of points and crossings.	[6M]
	b)	What is the principle stop signal? Explain its components with the help of a neat signal.	[10M]
5	a)	Explain Take off climb surface.	[4M]
	b)	b) The basic runway length of an airport at an altitude of 500m above MSL is 2800m. The airport reference temperature is 43^0 C and the effective gradient is 1.5%. Compute the corrected runway length as per FAA standards.	[6M]
	c)	What are the basic assumptions made in finalizing runway length?	[6M]
6	a)	Discuss how the analytical methods differ empirical methods and semi empirical methods for the design of airfield pavements	[8M]
	b)	Discuss in brief about maintenance management system in reference to airfield pavements.	[8M]
7	a)	Explain the formation of tides. Explain tidal day, spring tides and neap tides.	[8M]
	b)	What are the factors to be considered for the selection of harbors on a sandy coast and Lower reach of a river?	[8M]

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Code No: RT32015 **R13** SET - 2

III B. Tech II Semester Regular/Supplementary Examinations, April - 2017

TRANSPORTATION ENGINEERING – II

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What is the minimum number of sleepers required for a 2km length of rail for a broad gauge?	[3M]
	b)	Differentiate between ruling gradient and momentum gradient.	[4M]
	c)	What are the permissible speeds adopted for on different crossings?	[4M]
	d)	Explain various moments of aircrafts?	[4M]
	e)	List out special characteristics and requirements of airport drainage.	[4M]
	f)	Differentiate between break waters, dock and quay?	[3M]

PART -B

2	a)	What are the advantages and disadvantages of wooden sleepers?	[4M]
	b)	What are the requirements of ideal gauge?	[8M]
	c)	What would be the length of track i) to overcome temperature stress ii) to prevent creep for equilibrium? When it is given A= 60 cm^2, α=1.12 x 10^{-5} per ^{0} C, E= 21.5 x 10^5 kg/cm^2 and rise in temperature, i.e. r= 32^0 C and assume a 750 kg/km as resistance to track movement.	[4M]
3	a)	What are the limitations of cant deficiency?	[3M]
	b)	Compute the maximum permissible speed for the following data on a curve of high speed B.G for the following data. Degree of curve = 1.2, Amount of super elevation = 8cm, Length of transition curve = 150 m, Maximum sanctioned speed likely to be 135kmph.	[8M]
	c)	Discuss briefly about various types of transition curves used in railways.	[5M]
4	a)	Differentiate between Time interval system and Pilot guard systems of train movements.	[6M]
	b)	Explain various functions of interlocking.	[10M]
5	a)	Explain the importance of Turning Zoning laws.	[4M]
	b)	b) The basic runway length of an airport at an altitude of 500m above MSL is 1800m. The airport reference temperature is 45^0 C and the effective gradient is 1.5%. Compute the corrected runway length as per FAA standards.	[6M]
	c)	What are the basic assumptions made in finalizing runway length?	[6M]
6	a)	Explain the causes of airfield flexible pavement failures.	[8M]
	b)	Discuss in brief about maintenance management system in reference to airfield pavements.	[8M]
7	a)	Explain briefly about various types of dredgers.	[8M]
	b)	What are the factors to be considered for the selection of harbours on a sandy coast and Lower reach of a river?	[8M]

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Code No: RT32015 **R13** SET - 3

III B. Tech II Semester Regular/Supplementary Examinations, April - 2017

TRANSPORTATION ENGINEERING – II

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What is the minimum number of sleepers required for a 2km length of rail for a broad gauge?	[3M]
	b)	Determine the weighted average of speed when 10 trains moves with 80kmph, 5 trains with 85kmph, 15 trains with 90 kmph and 20 trains with 75kmph.	[4M]
	c)	What is the expression used to find the distance between A.N.C. and T.N.C?	[4M]
	d)	What is wind coverage? Explain briefly.	[4M]
	e)	What are the basic types of failures occurs in rigid pavement?	[4M]
	f)	What are the requirements of navigational aids?	[3M]

PART -B

2	a)	Explain various types of chairs and their uses.	[4M]
	b)	What is the role of ballast in railway track? What are the requirements of ballast?	[8M]
	c)	Explain adzing of sleepers.	[4M]
3	a)	What is the necessity of widening of gauges on curves?	[3M]
	b)	Compute the maximum permissible speed for the following data on a curve of high speed B.G for the following data. Degree of curve = 1.2 ,Amount of super elevation = 8cm,Length of transition curve = 175 m, Maximum sanctioned speed likely to be 145kmph.	[8M]
	c)	Derive an expression for cant in rail curves.	[5M]
4	a)	What are scissor crossings? Explain briefly.	[4M]
	b)	Explain briefly about various Mechanical devices required for interlocking system.	[12M]
5	a)	Explain any one method windrose diagram for finalizing runway orientation	[6M]
	b)	b) The basic runway length of an airport at an altitude of 500m above MSL is 1800m. The airport reference temperature is 45^0 C and the effective gradient is 1.5%. Compute the corrected runway length as per FAA standards.	[10M]
6	a)	Explain the causes of airfield flexible pavement failures.	[8M]
	b)	Discuss in brief about maintenance management system in reference to airfield pavements.	[8M]
7	a)	Explain briefly about various types of dredgers.	[8M]
	b)	Explain various types of break waters.	[8M]

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Code No: RT32015 **R13** SET - 4

III B. Tech II Semester Regular/Supplementary Examinations, April - 2017

TRANSPORTATION ENGINEERING – II

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What are the factors to be considered for sleeper density?	[3M]
	b)	What is the difference between pusher gradient and momentum gradient?	[4M]
	c)	What is the difference between T.N.C and A.N.C?	[4M]
	d)	What are the recommendations given by FAA normal wind components?	[4M]
	e)	What are various methods adopted for the design of flexible airfield pavements?	[4M]
	f)	What are the various types navigational aids used in fixed navigation structures?	[3M]

PART -B

2	a)	What are the requirements of a welding joint?	[4M]
	b)	What are the different causes of creep? How do you identify creep in the field.	[8M]
	c)	What would be the length of track i) to overcome temperature stress ii) to prevent creep for equilibrium? When it is given A= 60 cm^2, α=1.12 x 10^{-5} per ^{0} C, E= 20.5 x 10^5 kg/cm^2 and rise in temperature, i.e. r= 35^0 C and assume a 720 kg/km as resistance to track movement.	[4M]
3	a)	What is maximum degree of curvatures adopted on curves through tracks?	[3M]
	b)	Compute the maximum permissible speed for the following data on a curve of high speed B.G for the following data. Degree of curve = 1.2, Amount of super elevation = 8cm, Length of transition curve = 150 m, Maximum sanctioned speed likely to be 135kmph.	[8M]
	c)	Explain the difference between cant deficiency and negative super elevation.	[5M]
4	a)	What are scissor crossings? Explain briefly.	[6M]
	b)	Explain various functions of interlocking.	[10M]
5	a)	List out Aircraft characteristics to be considered in planning an airport planning and design.	[6M]
	b)	What is the effect of engine failure on runway length?	[10M]
6	a)	Discuss in brief about maintenance management system in reference to airfield pavements.	[8M]
	b)	Explain the causes of failures in rigid pavements.	[8M]
7	a)	What are the factors to be considered for the selection of harbors on a sandy coast and Lower reach of a river?	[8M]
	b)	Explain various types of break waters.	[8M]

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