## III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2019 $TRANSPORTATION\ ENGINEERING-II$

(Civil Engineering)

T	ime: 3	hours Max. Mar	rks: 70
		Note: 1. Question Paper consists of two parts (Part-A and Part-B) 2. Answer ALL the question in Part-A 3. Answer any FOUR Questions from Part-B	
		PART -A (14 M	arks)
	a)	Explain the role of various components of permanent way.	[2M]
	b)	Explain the term Pusher gradient.	[2M]
	c)	What is the use of stretcher bar in turnout?	[2M]
	d)	The maximum temperature in the hottest month is 43 $^{0}$ C and the average daily temperature is 33 $^{0}$ C. Compute temperature correction for an airport at an altitude of 500m above MSL.	[3M]
	e)	Discuss about frost heaving effect on pavements.	[3M]
	f)	What are the requirements of a good harbor?	[2M]
		$\underline{PART - B} \tag{56 M}$	arks)
	a)	What are the requirements of ideal gauge? Explain.	[7M]
	b)	What is creep? Explain creep using percussion theory.	[7M]
	a)	How do you define super elevation? What are the objects of providing super elevation on curves of a railway track?	[7M]
	b)	Compute the shift and offsets for every 10m of a transition curve of length 100m ling joining the ends of a 5° curve and set out the curve. If the maximum cant permitted on this curve, with cant deficiency of 5cm, is 12.7cm and also compute cant on the curve.	[7M]
	a)	Draw a typical left hand turnout and show various components.	[7M]
	b)	What are various objects of signals and explain the principles to be followed in	[7M]
	-,	the design of signals.	[,-:-]
	a)	What are the factors controlling taxiway alignment? Explain.	[7M]
	b)	Explain briefly about the en-route aids to be used for controlling the traffic of aircrafts.	[7M]
	a)	Explain LCN system of designing flexible pavements.	[7M]
	b)	What are various components involved in airport pavement evaluation? Explain.	[7M]
	a)	Classify various types of breakwaters. Under what conditions rubble mound	[7M]
	b)	break water is preferred? What are the factors to be considered for the selection of harbor site? Explain.	[7M]
	0)	That are the factors to be considered for the selection of harbor site. Explain.	[,1,1]

Time: 3 hours

Max. Marks: 70

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(Iarks)	$\underline{\mathbf{PART}} - \mathbf{A} \tag{1}$				
[2M]	a) Find the minimum number of sleepers required for a B.G having a length of 20kms.	1. a)			
[2M]	b) What are the various gradients used in railways?	b)			
[2M]	c) Explain facing direction and trailing direction in turnouts.	c)			
[3M]	d) What is cross wind component and discuss briefly about permissible limits as pe ICAO?	d)			
[3M]	e) Discuss about Longitudinal cracking effect on pavements.	e)			
[2M]	f) What is the role of jetties?	f)			
(Iarks)	$\underline{PART - B} \tag{5}$				
[7M] [7M]	<ul><li>a) What are the advantages of cast iron sleepers and concrete sleepers? Explain.</li><li>b) What are the different types of joints used in rails? Explain.</li></ul>	,			
[7M]	<ul> <li>a) Compute the maximum permissible speed on a curve of high speed B.G. track having i) degree of curve = 1.2° ii) amount of super elevation = 75cm iii) length of transition curve = 150m iv) Maximum speed on the section likely to be sanctioned as 160kmph.</li> <li>b) What is the necessity of geometric design of railway track? Enumerate the significant features of design of railway track.</li> </ul>	ŕ			
	significant features of design of failway track.				
[7M] [7M]	<ul><li>a) What is the classification and types of signals used in railways? Explain.</li><li>b) Explain the functions and necessity of interlocking.</li></ul>				
[7M]	a) Explain how basic runway length is determined based on performance of jet and conventional engine aircrafts?	5. a)			
[7M]	b) Discuss about geometric standards of Taxiway.	b)			
[7M] [7M]	<ul><li>a) What are the factors that cause failure of flexible pavements of airports? Explain.</li><li>b) What are the functions of sub surface drainage system? Explain.</li></ul>	,			
[7M] [7M]	<ul><li>a) Explain briefly about quay, pier, mole, Trestle and fenders.</li><li>b) What are various types of dredgers used in harbors? Explain briefly.</li></ul>	,			
	PART -B  What are the advantages of cast iron sleepers and concrete sleepers? Explain.  What are the different types of joints used in rails? Explain.  Compute the maximum permissible speed on a curve of high speed B.G. tracility having i) degree of curve = 1.2° ii) amount of super elevation = 75cm iii) length of transition curve = 150m iv) Maximum speed on the section likely to be sanctioned as 160kmph.  What is the necessity of geometric design of railway track? Enumerate the significant features of design of railway track.  What is the classification and types of signals used in railways? Explain.  Explain the functions and necessity of interlocking.  Explain how basic runway length is determined based on performance of jet and conventional engine aircrafts?  Discuss about geometric standards of Taxiway.  What are the factors that cause failure of flexible pavements of airports? Explain.  What are the functions of sub surface drainage system? Explain.  Explain briefly about quay, pier, mole, Trestle and fenders.	f)  2. a) b)  3. a)  4. a) b)  5. a) b)  6. a) b)  7. a)			

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(Civil Engineering)

7	Time: 3 hours Max. Marks				
		Note: 1. Question Paper consists of two parts (Part-A and Part-B)  2. Answer ALL the question in Part-A  3. Answer any FOUR Questions from Part-B			
		$\underline{PART} - \underline{A} \tag{14}$	Marks)		
1.	a)	What are the different materials used in ballast?	[2M]		
	b)	What should be the actual ruling gradient if the ruling gradient is 1 in 200 along with a curve of 4 <sup>0</sup> with B.G section?	[2M]		
	c)	Explain the term Heel divergence.	[2M]		
	d)	What is the influence of noise of aircraft on airport site selection?	[3M]		
	e)	Distinguish between alligator cracking and shear failure of pavements.	[3M]		
	f)	Explain wave diffraction.	[2M]		
		$\underline{PART - B} \tag{56}$	Marks)		
2.	a)	What are the requirements of fish plates? Explain.	[7M]		
	b)	Explain the requirements of ideal joint.	[7M]		
3	a)	Compute the shift and offsets for every 15m of a transition curve of length 120m ling joining the ends of a 4.5° curve and set out the curve. If the maximum cant permitted on this curve, with cant deficiency of 5cm, is 12.7cm and also compute cant on the curve.	[7M]		
	b)	Explain the terms pusher gradient, cant deficiency and weighted average speeds.	[7M]		
4.	a)	Explain briefly about Detector mechanism, Tappet Locking and slotting of signals.	[7M]		
••	b)	Draw a sketch of right hand turnout and show various components.	[7M]		
5.	a)	What are the assumptions to be made for finalizing basic run way length and also discuss about engine failure effect on the runway length?	[7M]		
	b)	What are the various aircraft characters are to be considered in airport layout? Explain.	[7M]		
6.	a) b)	Discuss about the estimation run off in airport surface drainage system. Explain LCN system of designing airport pavements.	[7M] [7M]		
	0)	Explain 2011 by seem of designing unport pavements.	[/141]		
7.	a)	Differentiate between jetty and wharf. State the condition which you will prefer their construction.	[7M]		
	b)	Discuss about various navigational aids required in harbors.	[7M]		

Code No: R1631015

SET - 4

## III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2019 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. Answer **ALL** the question in **Part-A** 3. Answer any **FOUR** Questions from **Part-B** PART -A **(14 Marks)** What do you understand by adzing of sleepers? 1. a) [2M] If the ruling gradient is 1 in 140 on a particular cross section of Broad gauge and b) [2M] at the same time a curve of 5<sup>0</sup> is situated on this ruling gradient, what should be the allowable gradient? What is the role of struts in turnouts? c) [2M] What are the data required for finalizing runway orientation? d) [3M] What are the aircraft wheels loads to be considered in the design of flexible e) [3M] pavements? What are different types of break waters? f) [2M] PART -B **(56 Marks)** 2. What are the various causes of creep? Explain the suitable remedial measures for [7M] a) rectifying the same. What ate the requirements of ballast? Explain. [7M] b) Explain the necessity of extra widening of gauge. If the wheel base of moving 3. a) [7M] train is 4.2m and the degree of curve 4.5° and the flanges project 3cm below the top of rail. Determine the extra width required on the curve. Discuss about cant, cant deficiency and cant excess and what are the limits [7M] prescribed by Indian railways. 4. a) Explain briefly about Mechanical interlocking of signals. [7M] b) Explain double turnout and Diamond crossing. [7M] 5. a) What are the factors to be considered in the selection of airport site? Explain. [7M] Explain the factors influencing the selection of exit taxiways. b) [7M] 6. a) Explain the requirement and characteristics of airport drainage. [7M] b) Discuss about the factors influencing the overlay design. [7M] 7. What are the requirements of navigational signals and discuss about the a) [7M] navigational signal structures. Explain briefly about various types of dredgers used in harbors. b) [7M]