Dr Akash

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May-2019

B.Tech VI Semester

COURSE CODE: 10B11CE614 MAX. MARKS:35

COURSE NAME: Transportation Engineering

COURSE CREDITS: 04 MAX. TIME: Two Hours

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

Q1. Explain primary and subsidiary classification of harbours, focussing on their salient features, with neat sketches. (3)

Q2. . Explain the factors which plays important role in site investigation of harbours and the significance of each of them. (3)

Q3. The following is the wind data for 10 years. (7)

Determine the best runway orientation (Wind Rose-II) and calculate the total wind coverage.

Wind Direction	Duration of wind, in hrs		
	1.67-6.95 m/sec	6.95-11.12 m/sec	11.12-16.67 m/sec
N	6482.4	2365.2	175.2
NNE	4993.2	1839.6	262.8
NE	2102.4	788.4	525.6
ENE	1051.2	350.4	175.2
E	700.8	175.2	0
ESE	262.8	87.6	0
SE	3766.8	2452.8	0
SSE	4818	2803.2	0
S	8497.2	4029.6	0
SSW	5518.8	2803.2	438
SW	3153.6	1576.8	262.8
WSW	876	438	87.6
W	350.4	87.6	0
WNW	175.2	87.6	0
NW	4642.8	1664.4	0
NNW	3504	1138.8	262.8

Q4. The length of a runway under standard conditions is 2100 m. The airport is to be provided at an elevation of 410 m above the mean sea level.

Determine the length of runway after applying-

(i) Corrections for elevation and temperature as per ICAO (2)

(ii) Correction for gradient as per FAA (2)

The construction plan provides following data-

Month	Temperature °C	
	Mean of Average Daily	Mean of Max. Daily
Jan	3	5
Feb	15	17
Mar	20	23
Apr	25	32
May	35	47
Jun	40	50
Jul	32	37
Aug	30	35
Sep	27	31
Oct	22	28
Nov	12	18
Dec	6	9

End to End of runway (m)	Grade (percent)
0 to 300	+1.00
300 to 900	-0.50
900 to 1500	+0.50
1500 to 1800	+1.00
1800 to 2100	-0.50
2100 to 2700	-0.10
2700 to 3000	+0.10

Q5. What do you mean by airport obstruction? Explain its two categories in detail with neat sketches. (3)

Q6. (i) What are the objectives of Airport Surveys? Explain any six types of surveys in detail. (3)

(ii) What are the three components of Air Traffic Control Network? Explain each in detail.(3)

Q7. Describe the various gradients used on railway track.

What should be the actual ruling gradient if the ruling gradient is 1 in 200 on a B.G. track and a curve of 3° is superimposed on it? (3)

Q8. What do you understand by Negative Superelevation? When from a layout of B.G. yard, a 8° curve branches off from a 4° main curve in an opposite direction. If speed is restricted to 28.95 kmph then determine the speed restriction on the mainline. (3)

Q9. Determine the length of transition curve and determine the offsets at every 15m. Given that the design speed of the train on curve is 90 kmph on a B.G. track. (3)