

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2026

B.Tech-IVth Semester (CE)

COURSE CODE (CREDITS): 18B1WCE634(3)

MAX. MARKS: 25

COURSE NAME: Transportation Engineering

COURSE INSTRUCTORS: Dr. Amardeep

MAX. TIME: 2Hour

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

Q.No	Question	CO	Marks
Q1	A transition curve is to be provided for a circular railway curve of 300 m radius, the gauge is 1.5 m with the maximum superelevation restricted to 15 cm. What is the length of the transition curve for balancing the centrifugal force?	CO-3	6
Q2	(a) What do you mean by wind rose diagram? Discuss in detail about its importance with the help of neat sketches. (b) Discuss about different aircraft characteristics and their impact.	CO-1	3+3
Q3	(a) List the various elements of an airport and explain them with a neat sketch. (b) Explain the various factors considered in selection of an airport site.	CO-4	6
Q4	A BG branch line track takes off as a contrary flexure through a 1 in 12 turnout from a main line track of a 3° curvature. Due to the turnout, the maximum permissible speed on the branch line is 30 km/h. Calculate the negative superelevation to be provided on the branch line track and the maximum permissible speed on the main line track (when it takes off from a straight track)	CO-3	6
Q5	Make a list of different factors affecting the orientation of an airport. Please specify the different aircraft characteristics by considering the weight & wheel configuration for the same with the help of figure (if required).	CO-4	6
Q6	Discuss any two methods of Setting Out a Circular Curve in detail along with proper sketch.	CO-3	3
Q7	Please suggest the best runway orientation by using the following data:	CO-2	2

Typical Wind Data

Direction	Duration of Wind (%)			Total Percentage of time wind blew between 6.0 to 60kmph
	6.0-25 kmph	25-40 kmph	40-60 kmph	
N	7.4	2.7	0.2	10.3
NNE	5.7	2.1	0.3	8.1
NE	2.4	0.9	0.6	3.9
ENE	1.2	0.4	0.1	1.8
E	0.8	0.2	0	1
ESE	0.3	0.1	0	0.4
SE	4.3	2.8	0	7.1
SSE	5.5	3.2	0	8.7
S	9.7	4.6	0	14.3
SSW	6.3	3.2	0.5	10
SW	3.6	1.8	0.3	5.7
WSW	1	0.5	0.1	1.6
W	0.4	0.1	0	0.5
WNW	0.2	0.1	0	0.3
NW	5.3	1.9	0	7.2
NNW	4	1.3	0.3	5.6
			Total	86.5