Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S4 (S, FE) / S2 (PT) (S) Examination January 2024 (2019 Scheme)
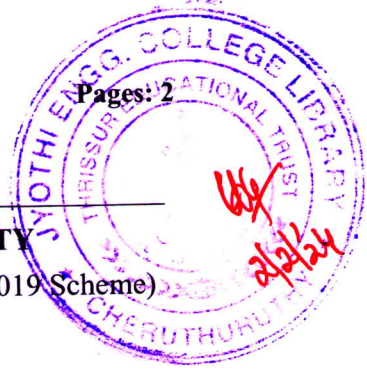
Course Code: CET206

Course Name: TRANSPORTATION ENGINEERING

Max. Marks: 100   Duration: 3 Hours

PART A
(Answer all questions; each question carries 3 marks)
Marks

1	Illustrate the cross section of a road in both embankment and cutting	(3)
2	Discuss the requirements of an ideal highway alignment	(3)
3	List out three desirable properties of bitumen used in road construction.	(3)
4	Compare the load transfer mechanism of flexible and rigid pavement	(3)
5	Define basic, possible and practical traffic capacity	(3)
6	Explain the traffic operations in a rotary intersection	(3)
7	Discuss the design considerations of breakwaters	(3)
8	Explain the necessity of coning of wheels	(3)
9	Discuss the role of head wind, tail wind and cross wind on runway orientation	(3)
10	Explain the functions of apron and hangar	(3)

PART B
(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Explain the factors affecting selection of highway alignment	(10)
	b)	Calculate safe stopping sight distance on a level road stretch for design speed of 60 kmph for two-way traffic on single lane road. Take f=0.36	(4)

OR

12	a)	Derive the expression for stopping sight distance on level roads.	(7)
	b)	The speeds of overtaking and overtaken vehicles are 65 kmph and 35 kmph respectively on a one-way traffic road. The average acceleration during overtaking may be assumed as 0.99m/sec². Calculate safe overtaking sight distance and draw a neat sketch of overtaking zone showing the position of sign posts	(7)

Module -2

13 a) Explain any two tests to check the suitability of aggregates used in road construction. (7)

b) List out the components of a bituminous concrete road. Explain the construction steps of bituminous concrete road. (7)

OR

14 a) Explain the factors affecting design of flexible pavements (7)

b) Discuss the procedure of CBR test to analyse the strength characteristics of subgrade soil (7)

Module -3

15 a) Explain the influence of road user characteristics on traffic flow (7)

b) Discuss the advantages and disadvantages of rotary intersection (7)

OR

16 a) Explain the different types of traffic signs used in Indian roads (7)

b) Discuss the warrants for installation of a traffic signal (7)

Module -4

17 a) Explain the component parts of a railway track with a neat figure. (10)

b) Discuss the different types of tunnel sections (4)

OR

18 a) Explain the procedure of transferring centre line of a tunnel into underground (7)

b) Compare the features of mound breakwater and wall breakwater. (7)

Module -5

19 a) Explain the factors affecting selection of site for an airport. (10)

b) Draw the layout of an airport and label its parts. (4)

OR

20 a) Define Wind rose diagram. Explain types of wind rose and its importance in airport runway design. (10)

b) Discuss the assumptions made in calculating basic runway length (4)

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