APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

Q. P. Code : CE0819204-I **(Pages: 3)** **Name: .....**

Reg. No:.....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION MAY 2019

Branch: Civil Engineering **Specialization: Transportation Engineering**

08CE6204 PAVEMNT CONSTRUCTION EVALUATION AND MAINTENANCE

Time:3 hours **Max. marks: 60**

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	List out the requirements for an ideal subgrade soil.	3
	Answer b or c	
b	Explain the role of geosynthetics in stabilization of pavements with the help of neat sketches.	6
c	Explain the chemical method of stabilization which would be preferred for subgrade soil with high amount of clay fraction.	6

Q.no.	Module 2	Marks
2.a	List out the common equipments used for the construction of a bitumen pavement.	3
	Answer b or c	
b	Explain the steps involved in construction of the different layers of an asphalt pavement.	6
c	Depict and explain the salient features of the surface layer of a concrete pavement using a suitable figure.	6

Q.no.	Module 3	Marks
3.a	List out the merits and demerits associated with interlock pavements, if any.	3

Answer b or c

b	List out and explain the steps involved in the mix design of superpave.	**6**
c	Write short notes on polymer modified bitumen used in pavement construction.	**6**

Q.no.	**Module 4**	**Marks**
4.a	List out and explain using suitable sketches any three distresses likely to be observed in a concrete pavement.	**3**

Answer b or c

b	Explain Shahin's deduct value method to determine PCI.	**6**
c	Define the following terms (i) skid resistance (ii) pavement distress index and (iii) structural capacity of pavement.	**6**

Q.no.	**Module 5**	**Marks**
5.a	Differentiate between destructive and non-destructive methods of pavement testing. Also mention the merits and demerits associated with them.	**4**

Answer b or c

b	Explain any three methods/equipments used to evaluate the surface roughness of a pavement.	**8**

c Design the thickness of the flexible overlay using the following data and graphs: **8**

(i) Two lane single carriageway

(ii) Initial traffic in the year of completion of construction = 400 CV/day (sum of both directions)

(iii) Traffic growth rate per annum = 7.5 %

(iv) Design life = 15 years

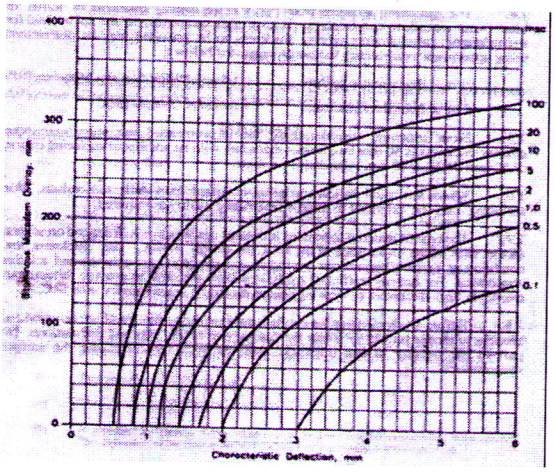
(v) Vehicle Damage Factor = 2.5(Standard axles per commercial vehicle)

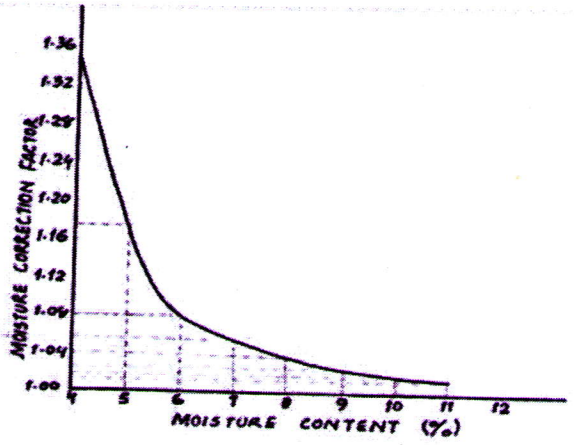
(vi) Mean pavement temperature = 40°C

(vii) Gravelly/sandy soil type with subgrade moisture content of 5% and low rainfall conditions

(viii) Dial gauge readings recorded using BBD

Do	Di	Df
100	38	36
100	36	34
100	24	21





Q.no. **Module 6** **Marks**

6.a Differentiate between routine maintenance and responsive maintenance adopted in pavements. Which type of maintenance would be advised under Indian conditions and why? **4**

Answer b or c

b Explain the different methods adopted for rehabilitation of asphalt pavements. **8**

c Explain the different methods adopted for maintenance of concrete pavements. **8**