

Code: 20CE6601

**III B.Tech - II Semester – Regular Examinations – JUNE 2023**

**ADVANCED PAVEMENT MATERIALS  
(HONORS in CIVIL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.

2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
<b>UNIT-I</b>					
1	a)	What are the functions of road pavement? Draw a neat sketch showing the structural functions of a pavement.	L5	CO1	7 M
	b)	Enumerate the role of material characterization in pavement design?	L4	CO1	7 M
<b>OR</b>					
2	a)	What are the factors affecting the performance of pavement? Explain in detail.	L1	CO1	7 M
	b)	What are the performance measures of pavement? List out the types of pavement evaluation methods.	L2	CO1	7 M
<b>UNIT-II</b>					
3	a)	State the functions of sub grade. Give brief specifications of soil including unit weight and compaction requirements of soil in sub grade.	L4	CO2	7 M

	b)	Briefly discuss the I.S soil classification systems.	L4	CO2	7 M
<b>OR</b>					
4	a)	List out the factors which control the strength characteristics of soil. Describe the procedure of CBR test in the laboratory.	L4	CO2	7 M
	b)	What are deformation properties of soil? and explain about the factors affecting sub grade soil strength.	L2	CO2	7 M
<b>UNIT-III</b>					
5	a)	Explain the desirable properties of aggregates to be used in pavement construction.	L2	CO3	7 M
	b)	List the various tests conducted on road aggregates in order to ascertain its suitability and indicate the desirable values of the test results.	L4	CO3	7 M
<b>OR</b>					
6	a)	What are the methods of designing aggregate gradation? Discuss in detail.	L1	CO3	9 M
	b)	Write a note on aggregate blending to meet the specified gradation.	L3	CO3	5 M
<b>UNIT-IV</b>					
7	a)	Discuss the different types of geosynthetics in road construction?	L4	CO4	7 M
	b)	Explain in detail about the uses of geosynthetics in pavement structures.	L2	CO4	7 M

<b>OR</b>					
8	a)	Write the differences between geogrids and Geocells.	L4	CO4	7 M
	b)	How can geosynthetics improve sustainability of roads? Explain in detail.	L4	CO4	7 M
<b>UNIT-V</b>					
9	a)	Discuss about advanced pavement materials for sustainable transportation Infrastructure	L3	CO5	7 M
	b)	What are the functions and applications of fly ash in road construction	L1	CO5	7 M
<b>OR</b>					
10	a)	Explain about the properties of GGBS.	L2	CO5	5 M
	b)	Write short notes on i) quarry dust ii) Rice husk dust iii) Brick ash in road construction	L4	CO5	9 M