

**CONTINUOUS INTERNAL EVALUATION-3**

Dept: CV	Sem / Div: 5 sem	Sub: Highway Engg	S Code: 18CV56
Date: 15-01-2021	Time: 2.30-4.00 PM	Max Marks: 50	Elective: N
Note: Answer any 2 full questions, choosing one full question from each part.			

QN	Questions	Marks	RBT	COs					
<b>PART A</b>									
1 a	Enumerate different types of pavements with their component parts and functions of each component	8	L2	CO2					
b	Briefly explain how the CBR value of the given soil is found in the laboratory.	8	L2	CO2					
c	A plate load test was conducted on a soaked subgrade during monsoon using a plate diameter of 30cm. The load values corresponding to the mean settlement dial reading are given below. Determine the modulus of subgrade reaction for the standard plate	9	L4	CO2					
	Settlement values, mm	0.0	0.24	0.52	0.76	1.02	1.23	1.53	1.76
	Load values, kg	0.0	460	900	1180	1360	1480	1590	1640
<b>OR</b>									
2 a	Enumerate the identification and classification tests of soils.	8	L2	CO2					
b	What are the tests conducted for judging the properties of road aggregates? Mention the significance of each test.	8	L2	CO2					
c	Determine the ESWL under a dual tandem wheel load assembly using simplified graphical method at a depth of 450mm and 900mm and load on wheel is 70kN and pressure is 0.6MPa. C/C distance between dual wheels is 600mm, C/C distance between tandem axle is 1400mm	9	L4	CO2					
<b>PART B</b>									
3 a	Explain the methods of subsurface drainage to control the seepage flow, capillary rise and water table.	8	L2	CO3					
b	Discuss the various components of quantifiable and non-quantifiable benefits to the road users due to highway development project.	8	L2	CO4					
c	Determine the relative economics of two types of flexible pavements by annual cost method from the following data.	9	L4	CO4					
	<b>Details</b>	<b>Pavement type A</b>	<b>Pavement type B</b>						
	Total cost per km, lakhs	3.3	6.2						
	Design life, years	5.0	12.0						
	Annual rate of interest, %	10.0	9.0						
	Salvage value after design life, lakhs	2.1	3.0						
	Average annual maintenance cost, lakhs	0.4	0.2						
<b>OR</b>									
4 a	Explain with sketches how the subsurface drainage system is provided to lower the water table and control the seepage flow	8	L2	CO3					

**CONTINUOUS INTERNAL EVALUATION-3**

b	Explain the concept of BOT and BOOT, in financing high way project.	8	L2	CO4																				
c	Calculate the annual cost of stretch of highway from the following particulars.	9	L4	CO4																				
	<table border="1"> <thead> <tr> <th>Item</th> <th>Total Cost (Rs. in lakh)</th> <th>Estimated life in years</th> <th>Rate of interest (%)</th> </tr> </thead> <tbody> <tr> <td>Land</td> <td>12</td> <td>100</td> <td>6</td> </tr> <tr> <td>Earthwork</td> <td>9</td> <td>40</td> <td>8</td> </tr> <tr> <td>Bridges &amp; Culverts</td> <td>7.5</td> <td>60</td> <td>8</td> </tr> <tr> <td>Pavement</td> <td>14</td> <td>15</td> <td>10</td> </tr> </tbody> </table>	Item	Total Cost (Rs. in lakh)	Estimated life in years	Rate of interest (%)	Land	12	100	6	Earthwork	9	40	8	Bridges & Culverts	7.5	60	8	Pavement	14	15	10			
Item	Total Cost (Rs. in lakh)	Estimated life in years	Rate of interest (%)																					
Land	12	100	6																					
Earthwork	9	40	8																					
Bridges & Culverts	7.5	60	8																					
Pavement	14	15	10																					

