MASTER OF CONSTRUCTION ENGINEERING 4th SEM. EXAMINATION, 2017 <u>Repair & Retrofitting Technique - II</u>

Times :	Thi	ree hours Part -I Fi	ull Marks: 100
		Answer any two questions. Explain your answer with neat sketches a	as necessary
1.	a)	Distinguish between Repair and Retrofitting of structures in the Seismic considerations?	ne context of
	b)	What are the different seismic Performance levels of a structure?	4
	c)	What are the different steps to be undertaken for detailed 'Seismic E existing building structures?	valuation' of
	d)	Discuss on global seismic retrofit strategies of multi-storied R.C.C b	ouildings. 10
2.	a)	Discuss on the different aspects of seismic disaster mitigation.	5
	b)	How does seismic base isolation reduce damage and discuss on the de of seismic isolation in the context of force displacement trade-off?	sign principle 8
	c)	Compare critically between base isolation and conventional retrofitt of buildings. Indicate short & long term benefits and goal of base isol	ing technique ation.
	d)	Discuss on the issues of practical limitation, suitability of constructability and design aspect of base isolation retrofitting techni	application.
3.	a)	Discuss 'Non-Linear Static Analysis' for Seismic evaluation o indicating its objectives in the context of seismic retrofitting of struct	f a building ure?
		What are the expected outcomes of the analysis?	12
	b)	Discuss Capacity, Demand spectrum and performance point of Analysis of a structure.	f Push-Over
	c)	Discuss 'Re-pointing Technique' for retrofitting of brick masonry wa	

Repair and Retrofitting Technique-II

Ex/PG/CT/T/221/2017

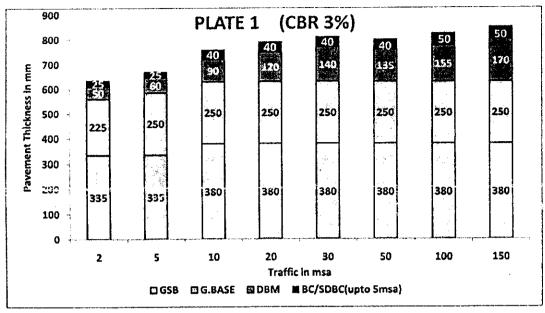
Answer any two questions.

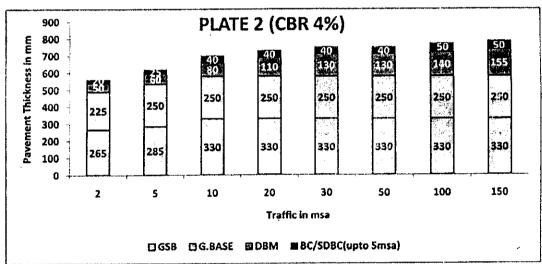
PART - II

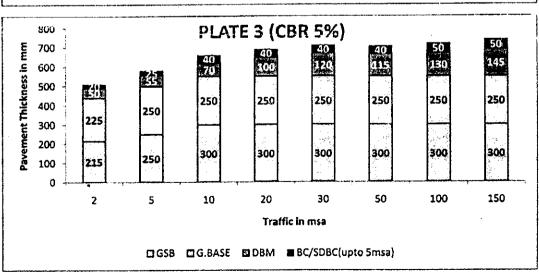
Assume relevant data wherever required with justification.

- Q-1. Design a flexible road pavement for a stretch of National Highway passing through Kharagpur in West Bengal with an initial traffic of 2500 CVPD having a subgrade CBR of 4%. Find out the crust thickness of pavement indicating materials and modulus of constituent layers. Find out the remaining life of pavement against cracking if the modulus of bituminous base becomes half of its design value. Assume tyre pressure as 0.7 MPa. (25)
- Q-2. (a) Describe fatigue failure in concrete pavement as explained in IRC-58-2015. (10)
- (b) Why Deflectometer is considered as a more reliable tool for condition monitoring of bituminous as well as concrete road pavement. (15)
- Q-3. (a) Define Roughness index, Describe the specification of Roughness index for different types of pavement surface. (6)
- (b) Explain the minimum strength requirement of PQC for high volume and low volume roads with reasons. (7)
- © Write notes on (i) Cement stabilized subbase (ii) Debonding layer (ii) RAP (4 x 3)

IRC: 37-2012







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