

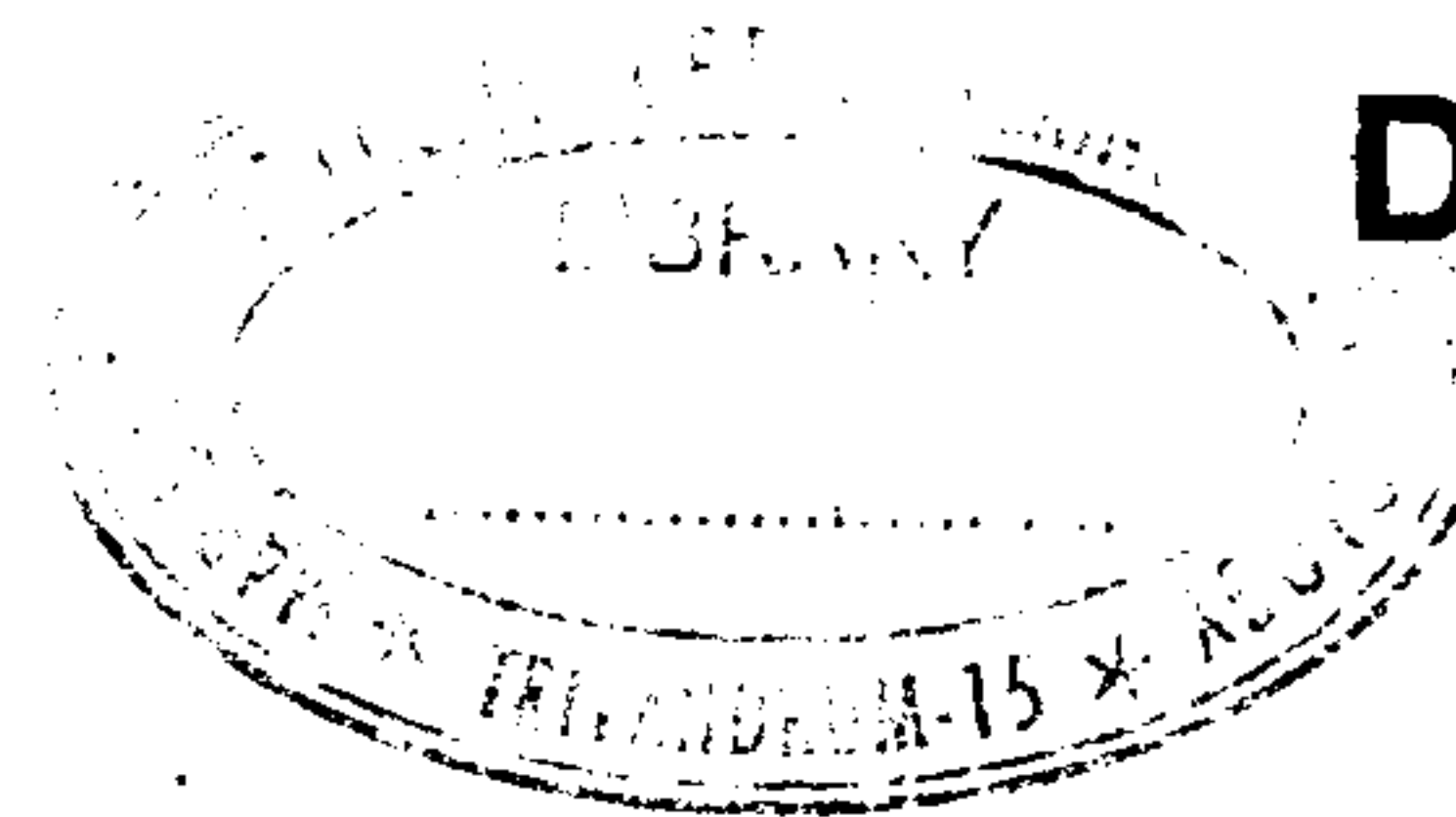


(Pages : 2)

D – 3407

Reg. No. :

Name :



**Eighth Semester B.Tech. Degree Examination, December 2017
(2008 Scheme)
08.806.3 Elective – IV
DESIGN AND CONSTRUCTION OF PAVEMENTS (C)**

Time : 3 Hours

Max. Marks : 100

- Instructions :** 1) Answer **all** questions from Part – A and **one full** question from **each** module in Part B.
2) Assume suitable data **if** necessary.

PART – A

1. a) Explain the concept of ESWL.
- b) What are the limitations of GI method of flexible pavement design ?
- c) Discuss the performance based design of flexible pavements.
- d) Explain the terms : radius of relative stiffness and radius of resisting section.
- e) Write a note on use of joints in cement concrete pavements.
- f) Explain how an airfield pavement is different from a highway pavement.
- g) Briefly explain the construction procedure for bituminous macadam.
- h) Discuss various distresses in flexible pavements. **(5×8=40 Marks)**

PART – B

Module – I

2. a) Discuss in detail the component parts and functions of various layers of flexible and rigid pavements. Mention the merits and demerits of a rigid pavement over a flexible pavement.
- b) Explain in detail the procedure of design of a flexible pavement as IRC : 37-2001.

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OR

P.T.O.



3. a) Discuss the effect of the following factors in pavement design and performance.
- Wheel load factors
 - Climatic factors.
- b) Explain Burmister's two layer theory for analysis and design of flexible pavements. 20

Module – II

4. a) What are the causes of development of temperature stresses in rigid pavements? Explain the warping and frictional stresses developed in rigid pavements.
- b) Differentiate between tie bars and dowel bars. Design the dimensions and spacing of tie bars, given that the pavement thickness is 20 cm and width of road is 7 m with one longitudinal joint. The unit weight of concrete is 2400 kg/cm^3 , the coefficient of friction is 1.5, allowable working stress in steel is 1750 kg/cm^2 and bond stress of deformed bars is 24.6 kg/cm^2 . 20

OR

5. a) Discuss in detail the IRC recommendations for design of thickness of a rigid pavement.
- b) What are the requirements of an airfield pavement? Describe in detail the FAA method of design of an airfield pavement. 20

Module – III

6. a) Differentiate between bituminous macadam and bituminous concrete constructions. Explain the construction procedure for a bituminous construction.
- b) Differentiate between the functional and structural evaluation of pavements. Explain the concept of Present Serviceability Index (PSI). 20

OR

7. a) Explain the functional requirements and importance of surface drainage in flexible pavements. Explain the principles of surface drainage.
- b) Discuss in detail the various distresses in rigid pavements. 20
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