F 3257 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Eighth Semester

Branch : Civil Engineering

CE 010 804 L05—HIGHWAY AND AIR FIELD PAVEMENTS (Elective III) [CE]

(New Scheme—2010 Admissions–Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. What are the factors affecting stability of pavements ?
2. Explain the effect of climatic variations.
3. Define relative stiffness.
4. What is wrapping stress ?
5. Write a note on pavement instrumentation.

(5 × 3 = 15 marks)

Part B

Answer ***all*** *questions.*
Each question carries 5 *marks.*

6. Explain modulus of subgrade reaction.
7. Explain the merits and limitations of group index method.
8. Write a note on design charts.
9. Differentiate tie bars and dowel bars.
10. Describe pavement evaluation.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*
Each question carries 12 *marks.*

11. (a) Discuss the functions of various components of a flexible pavement.

Or

(b) Explain the following with respect to pavement design.

(i) Soil subgrade and its evaluation.

(ii) Sub-base and Base courses and their evaluation.

Turn over

12. (a) What are the IRC recommendations for the CBR method of design?

Or

(b) Explain group index method. A subgrade soil sample has the following properties : Soil passing through 0.0 ? 5 mm.; sieve = 60%; liquid limit = 50%; plastic limit = 43%. Design the pavement section by G.I. method. Assume heavy traffic with over 460 CVd.

13. (a) What are design considerations in rigid pavements design ? Explain the significance of radius of relative stiffness.

Or

(b) Explain the calculation of Bradbury's stress coefficients. Explain how stress at different points are calculated using Westergaards stress equations.

14. (a) Calculate the stresses at interior, edge and corner regions of a cement concrete pavement, using Westergaards stress equations. Use the following data : Wheel load = 5100 kg., Slab thickness = 18 cm. Modulus of elasticity of cement concrete = 3.0×10^5 kg./cm^2. Poisson's ratio = 0.15, Subgrade reaction= 6.0 kg./cm^3. Radius of contact area = 15 cm.

Or

(b) Explain how a bituminous pavement is structurally evaluated. Name a few instruments required for the same.

15. (a) Explain how Benkelman beam is used for the performance testing of pavements.

Or

(b) Why joints are provided in concrete pavements? What are the different types of joint ? Explain any three joints.

(5 × 12 = 60 marks)

F 3290 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Eighth Semester

Branch : Civil Engineering

CE 010 805 G02 – ENVIRONMENTAL POLLUTION CONTROL TECHNIQUES (Elective

(New Scheme – 2010 Admissions – Supplementary)

Time : Three Hours Maximum :

Part A

Answer **all** *questions.*

Each question carries 3 *marks.*

1. Define the term air pollution. What are its economic effects?
2. What is water pollution? Classify the various types of water pollutants.
3. Write a short note on neutralization.
4. What do you understand by the term solid waste? List out the various types of s
5. Write a short note on industrial noise.

(5 × 3 =

Part B

Answer **all** *questions.*

Each question carries 5 *marks.*

6. Write a short note about the various approaches available to control of emissions into the atmosphere.
7. Explain the important chemical waste water characteristics of concern in w management.
8. Explain the terms evaporation and iron exchange in industrial waste water treat
9. What is recycling? What are the advantages of recycling and waste utilization?
10. Write a short note on the issues involved in the enforcement of environmental le

(5 × 5 =

Part C

Answer **all** *questions.*

Each full question carries 12 *marks.*

11. Enumerate the various control devices for gaseous contaminants and explain them with its merits and demerits.

Or

12. Name and describe the three control devices developed for control of automotive em

13. Describe high rate anaerobic methods and discuss their advantages and disadvanta

Or

14. Discuss the various physiochemical treatments provided for waste water treatm their advantages and disadvantages.

Or

15. Discuss the importance of sedimentation, floatation coagulation in industrial was treatment.

16. Discuss the importance of pretreatment to industrial waste water. List out treatments.

17. Which are the various methods used for the collection and transportation of solid w

Or

18. Write a short note land filling method of solid waste disposal with its merits and d

19. Discuss the various effects of Noise Pollution.

Or

20. Discuss the general powers of the central government under Environmental Protec

(5 × 12 = 6