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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CE) (2012 to 2017) (Sem.-7)

DESIGN OF STEEL STRUCTURES-II

Subject Code : BTCE-801

M.Code : 71859

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**Answer briefly :**

- Q1. What do you understand from the term "Curtalement of Flanges"?
- Q2. What are the purposes of Stiffeners?
- Q3. What are the different modes of failures of a plate girder?
- Q4. Write Fuller's formula. Indicate the meaning of various notations used.
- Q5. What is gantry girder? Draw a neat sketch of any gantry girder.
- Q6. What is meant by transverse bents?
- Q7. Explain Stringers.
- Q8. What are the differences between rocker and roller bearing?
- Q9. Explain in brief about bracings.
- Q10. What do you mean by economical span length with reference to bridges?

SECTION-B

- Q11. Design a section of plate girder to carry a uniformly distributed load of 1000kN over a span of 10m. A full lateral support is provided to the compression flange. Provide stiffeners if required.
- Q12. Differentiate between Deck type and through type truss bridges. Show various parts of truss bridge with the help of a diagram.

- Q13. Discuss the various functions of bearing.
- Q14. Derive the expression for the economical depth of a plate girder. Assume moment is resisted by flanges only.
- Q15. Write down the steps of design of stringers.

SECTION-C

- Q16. Design a Gantry girder without lateral restraint along its span, to be used in an industrial building carrying a overhead travelling crane for the following data :

Crane Capacity = 300 kN.

Self-weight of crane girder excluding trolley = 250 kN.

Self-weight of trolley, electric motor, hook etc = 55 kN.

Approximate minimum approach of crane hook to the gantry girder = 1.15 m.

Wheel base = 3.5 m.

CIC distance between gantry rails = 15 m.

Span of gantry girder = 7.4 m.

Self-weight of rail section = 350 N/m.

Yield stress of steel = 250MPa.

- Q17. Design a railway bridge for following data :

Type of bridge = Deck type plate girder bridge.

Span = 18m between centers of bearings.

Gauge - broad, single track, main line.

Distance between centers of plate girders = 2m.

- Q18. Explain the following :

- a) Mill bent
- b) Cross-girder

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.