

7. (a) List out advantages of cold formed section. 5
- (b) With the help of neat sketch describe typical cold formed steel profiles. 5
- (c) Write short note on local buckling of plate element. 10

SECTION – D

8. Write about the following : 20
- (a) Special consideration for design of structure using cold formed sections.
- (b) Concept of effective width & effective sections.

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Roll No.

24511

B. Tech. 7th Semester (Civil Engg.)

Examination – June, 2016

DESIGN OF STEEL STRUCTURE-II

Paper : CE-401-F

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : There are *nine* questions in all. Question No. 1 is *compulsory* & students have to attempt *one* question from each of the *four* Sections. All questions carry equal marks.

1. (a) What is purpose of gantry girder in a industrial building. ?
- (b) Draw a roof truss for industrial building & label its parts.
- (c) Calculate shape factor of a circle.
- (d) Define steel stacks.

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- (e) Classify steel stacks on the basis of construction of shaft.
- (f) For what purpose chimney lining is provided.
- (g) Why self supporting towers are preferred over flexible towers ?
- (h) List different loads acting on transmission tower.
- (i) What do you mean by mechanism ?
- (j) Write expression for thickness calculation in steel water tanks. $10 \times 2 = 20$

SECTION - A

- 2. (a) List out the conditions & basic theorem of plastic analysis. 10
- (b) Analyse the beam ABC of length 5 m, propped cantilever at end C & fixed at end A. The cantilever is loaded by load 'W' at B which is 2 m from C. For AB portion the plastic moment of inertia is 2 Mp while for BC it is 1 Mp. Determine collapse load. 10
- 3. (a) Calculate the plastic section modulus, shape factor & plastic moment of the following Sections : 10
 - (i) ISMB 200 having following properties :
 $I_{xx} = 2235.4 \text{ cm}^4$, $Z_{xx} = 223.5 \text{ cm}^3$, $A = 32.33 \text{ m}^2$,
 Thickness of web = 5.7 mm, thickness of flange = 10.8 mm.

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- (b) Discuss beam mechanism, panel mechanism & combined mechanism for analysis of portal frames. 10

SECTION - B

- 4. (a) With the help of neat sketch explain major components of an industrial building. 10
- (b) Write down the steps involved in design of purlins. 10
- 5. Discuss in detail steps involved in design of pressed steel water tanks. 20

SECTION - C

- 6. (a) Discuss the design considerations of steel stacks in view of : 10
 - (i) maximum permissible stress in steel
 - (ii) Deflection stresses
 - (iii) Minimum thickness of steel
- (b) Write down steps involved in design of cylindrical block foundation for steel stacks. 10

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