Q.30 Define roof truss? Enlist different part of a roof truss with diagram. (CO7)

Q.31 Enlist five factors which affect the selection of type of roof truss. (CO7)

Q.32 Explain the various steps followed in the design of axially loaded column. (CO8)

Q.33 Explain web crippling and web buckling. (CO9)

Q.34 Define plate girder? Enlist the various components of a plate girder. (CO9)

Q.35 Discuss important considerations followed in the erection of steel structures. (CO10)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Two plate 1.2 mm and 10 mm thick are joined by a double riveted lap joint. The rivets are 16 mm in diameter and are provided at a pitch of 50 mm. Take permissible stress for rivets in shearing and bearing as 90 Mpa and 270 Mpa respectively. The permissible tensile stress in plate is equal to 150 Mpa. (CO2)

Q.37 Design a suitable section for a steel column to carry an axial load of 650 kN. The column is 7 m long and adequately restrained in position and direction at both ends. Yield stress of steel = 250 Mpa. (CO4)

Q.38 Explain the various steps involve in the design of laterally restrained beam. (CO5)

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6th Sem / Branch : Civil Engineering

Sub.: Steel Structure Design

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 The Indian standard code which deals with the steel structure, is (CO1)

a) IS:875 b) IS:800
c) IS:456 d) IS:13920

Q.2 If the nominal diameter of rivet is 24mm, then its gross diameter will be (CO2)

a) 24.5 mm b) 25.5 mm
c) 26.5 mm d) 27.5 mm

Q.3 For PDFR, the value of permissible shearing stress in N/mm^2 is. (CO2)

a) 80 b) 90
c) 100 d) 270

Q.4 The advantages of welding lie in (CO4)

a) Rigid joint b) Better appearance
c) Quick process d) All the above

Q.5 Strength of a tension member is (CO5)

a) Net area X sat b) gross area X sat
c) O.6 fy d) None of these

Q.6 The permissible stress in axial compression depends upon (CO6)

a) Effective length b) Slenderness ratio
c) Radius of gyration d) Section area

Q.7 Roof trusses are economical for spans (CO7)
a) Greater than 3 meter
b) Grater than 6 meter
c) Greater than 10 meters
d) None of these

Q.8 Heavy section are used as (CO8)
a) Columns b) Beams
c) All the above d) None of the above

Q.9 Maximum shear stress is equal to : (CO9)
a) 0.35 fy b) 0.45 fy
c) 0.55 fy d) 0.65 fy

Q.10 Web crippling in a beam generally occurs at the point where (CO9)
a) Deflection is maximum
b) B.M. is maximum
c) Concentrated load is acting
d) Shear force is maximum

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 ISMB 300 stands for _____ (CO1)

Q.12 Number of rivet required _____ (CO2)

Q.13 HSFG bolt provides_____joint. (CO3)

Q.14 The size of butt weld is specified by the____ (CO4)

Q.15 Permissible stress in tension (s_{at})=____ X fly. (CO5)

Q.16 The member of a crane under compression is called_____. (CO6)

Q.17 The ratio of rise to full span is called_____ of roof truss. (CO7)

Q.18 Long columns fail due to _____? (CO8)

Q.19 Section modulus (Z) = _____? (CO9)

Q.20 The process of preparing components ready for assembly at site is termed as _____. (CO10)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain any five mechanical properties of steel. (CO1)

Q.22 Define the following
a) gross diameter of rivet
b) Nominal diameter of rivet
c) Pitch of rivet
d) Edge distance.

Q.23 Enlist five assumption in the analysis of riveted joints as per BIS 800. (CO4)

Q.24 Calculate the rivet value (R.V.) of a 22 mm of diameter rivet in a lap joint connecting two plates 10 mm and 12 mm thick. Take the value of permissible shear stress = 100 N/mm^2 and permissible bearing stress = 270 N/mm^2. (CO2)

Q.25 Enlist any five advantage of bolt connection over riveted connection . (CO3)

Q.26 Explain how to calculate the strength of a butt weld joint. (CO4)

Q.27 Calculate the strength of ISA 100 x 75 x 10 mm when used as a tension member with its longer leg connected at its end by 22 mm diameter rivets. (CO5)

Q.28 Define taking rivet? Where it is used. (CO5)

Q.29 Define the following terms : (CO6)
1) Continuous member
2) Discontinuous strut .