Q.28 Define strut? Enlist any three name of common section used as a struts? (CO-6)

Q.29 Describe various parts of roof truss with diagram. (CO-6)

Q.30 Enlist five assumptions made in theory of simple bending. (CO-9)

Q.31 Describe the following terms : (1) Section modulus (2) Moment of resistance. (CO-9)

Q.32 Describe various parts of roof truss with diagram. (CO-7)

Q.33 Enlist five uses of roof truss. (CO-7)

Q.34 Explain economic range of spacing of a roof truss. (CO-7)

Q.35 Explain briefly the fabrication and erection of steel trusses. (CO-10)

Section-D

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

Q.36 A double riveted double cover butt joint is used for connecting plates 12mm thick. The diameter of the rivets is 22mm. Calculate necessary pitch and efficiency of the joint. Take σ_{at} = 150 N/mm^2 τ_{vf} = 100 N/mm^2 and σ_{pf} = 300 N/mm^2 (CO-2)

Q.37 An ISMB500 @852.5 N/m has been used as beam. Calculate maximum bending stress and average shear stress when it carries a u.d.l. of 35 KN/m over an effective simply supported span of 8m. (CO-5)

Q.38 Explain the various steps involve in the design of axially loaded compression member. (CO-4)

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Subject : Steel structure Design

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SECTION-A

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

Q.1 ISMB is a _____. (CO-1)

a) Bean section b) Channel section
c) T-Section d) angle Section

Q.2 If the nominal diameter of rivet is 18 mm, then its gross diameter will be (CO-2)

a) 16 mm b) 18 mm
c) 18.5 mm d) 20 mm

Q.3 The strength of a riveted joint is equal to (CO-2)

a) Shearing strength b) Bearing strength
c) Tearing strength d) Least of A, B & C

Q.4 The compression members of a roof truss are known as. (CO-4)

a) Column b) Strut
c) Pillar d) all of the above

Q.5 A tie member is a (CO-5)

a) Torsion member b) Compression member
c) Tension member d) Flexible member

Q.6 Unit of Slenderness ratio is (CO-6)

a) mm b) mm^2

c) mm^3 d) No unit

Q.7 The ratio of rise to full span is (CO-7)

a) Slope b) Span

c) Pitch d) Panel

Q.8 Load carrying capacity is more in (CO-8)

a) Long column b) Medium column

c) Short column d) all of these

Q.9 Web crippling in a beam generally occurs at the point where (CO-9)

a) Deflection is maximum

b) B.M. is maximum

c) Concentrated load is acting

d) Shear force is maximum

Q.10 The ration of height of truss to its span is (CO-6)

a) Rise b) Pitch

c) Both A & B d) None of these

Section B

Note: Objective types Questions. All Questions are compulsory. (10x1=10)

Q.11 Steel is an alloy of ____ and _____? (CO-1)

Q.12 Two main types of weld are _____? (CO-2)

Q.13 Bolts should be tightened upto required _____. (CO-3)

Q.14 Slenderness ratio is expressed as the ratio of _____? (CO-4)

Q.15 The strength of beam depends upon _____?(CO-5)

Q.16 The structural member spanning from truss to truss is knows as _____? (CO-6)

Q.17 Roof trusses are economical for span more than _____. (CO-7)

Q.18 Slenderness ratio is the ratio of _____ and _____? (CO-8)

Q. 19 A beam is defined as a structural member subjected to _____ loading. (CO-9)

Q.20 The process of assembling the fabricated components on site is called. (CO-10)

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. (CO-1)

Q.22 Enlist five differences between lap joint and butt joint. (CO-2)

Q.23 Calculate the rivet value of an 18mm diameter power driven field rivet (PDFR) which connect two 8 mm thick plates to a 10 mm thick plate, one either side of it. (CO-2)

Q.24 Enlist any five advantages of weld connection over riveted connection. (CO-2)

Q.25 How the strength of fillet weld and butt weld is determined. (CO-3)

Q.26 Explain tension splice? Why design of tension splice is required. (CO-5)

Q.27 Calculate the strength of ISA 100x75x10 mm when used as a tension member with its longer leg connected at its end by 22mm diameter rivets. (CO-5)