1. A 10 m long beam, simply supported at its ends, carries udl of 10 kN/m over the span. The maximum deflection
in terms of EI is :->1302/EI
2. A 4 m long beam, simply supported at its ends, carries a point load `W' at its centre. If the slope at the ends of
the beam is 10, then the deflection at the centre of the beam will be in `mm' :->23.27
3. A 6 m long beam, simply supported at its ends, carries a point load 10 kN at its centre. The maximum deflection
in terms of EI is :->45/EI
4. A beam is a :->one dimensional structure
5. A beam is said to be of uniform strength, if :->bending stress is same at every section along its longitudinal
axis
6. A beam is supported with equal over hangs over the two supports. Each overhang is `a' and supported span is
`L'. the deflection of the mid point of the beam due tot two point load `W'
each acting on the two ends is :-
7. A beam of overall length l rests on two simple supports with equal overhangs on both sides. Two equal loads
act at the free ends. If the deflection at the centre of the beam is the same as at either end, then the length of
>either overhang is :->0.152 l
8. A boiler shell 100 cm dia and is subjected to an internal pressure of 1.2 M N/m2 and the hoop stress is 90 N/m2.
The plate thickness is :->12 mm
9. A boiler shell 100 cm dia and plate thickness 12 mm is subjected to an internal pressure of 1.2 M N/m2. The
hoop stress will be :->90 N/m2
10. A boiler shell is to be made of 20 mm thick plate having a limiting tensile stress of 125 N/mm2. If the
efficiencies of the longitudinal and circumferential joints are 80 % and 30 %, determine the maximum
permissible dia of the shell for an internal pressure of 2.5N/mm2 :->120 cm
11. A boiler shell is to be made of 20 mm thick plate having a limiting tensile stress of 125 N/mm2. If the
efficiencies of the longitudinal and circumferential joints are 80 % and 30 %, determine the maximu m
permissible dia of the shell for an internal pressure of 2.5N/mm2 :->1. 875N/ mm2
12. A cantilever AB is subjected to a concentrated load at the free end the slope and deflection at the free end are
and. If the same load is applied at mid span point, the
deflection at the free end will be :- >
13. A cantilever beam of rectangular c/s carries a point at its free end. If the depth of the beam
is doubled and the load halved. The deflection at the free end, as compared to its original value, will be :-
>1/4
14. A cantilever beam of span 2m is subjected to u.d.l of 10kN/m. IfkN.mm2. the
maximum deflection in `mm' is :->1000
15. A cantilever carries a u.d.l. (W) over its span and a force W act at its free end upward. The net deflection of the
free end will be :->**upward**
16. A cantilever is subjected to a concentrated load W at the mid-point of the span. The slope at the free end will be
:->
17. A cantilever is subjected to moment M at the free end. The deflection at free end is :-
>
18. A compound cylinder is formed by :->shrinking one cylinder on to another
19. A continuous beam is one which is :->fixed at both ends
20. A cylinder can be assu med as a thin cylinder when the dia to thickness ratio is :->>20
21. A cylinder is to be designed as a thick cylinder when d/t ratio is :-><20
22. A cylinder of internal dia 0.60 m contains air at a pressure of 7.5N/mm2. If the maximu m per missib le stress
induced in the material is 758N/mm2, find the thickness of the cylinder :->3 cm
23. A cylinder of internal dia 3m and of thickness 6 cm contains a gas. If the tensile stress in the material is not to
exceed 70N/mm2, determine the internal pressure of the gas :->2.8N/mm2
24. A cylindrical pipe of diameter 2.0m and thickness 2.0cm is subjected to an internal fluid pressure of 1.5N/mm2.
The longitud inal stress is :->37.5N/ mm2

25. A cylindrical pipe of diameter 2.0m and thickness 2.0cm is subjected to an internal fluid pressure of 1.5N/mm2.
26. A cylindrical section having no joints is known as :->seamless section
27. A cylindrical shell made of mild steel plate of 100 cm diameter is to be subjected to an internal pressure of 10
kg/cm2. If the material yields at 20 00 kg/cm2, assuming factor of safety as four and using maximum principal
stress theory, thickness of the p late will be :->10 mm
28. A cylindrical vessel whose ends are closed by means of rigid flange plates, is made of steel plate 4 mm thick.
The length and internal dia of the vessel are 100 cm and 30 cm. Determine increase in length :->0.075 cm
29. A cylindrical vessel whose ends are closed by means of rigid flange plates, is made of steel plate 4 mm thick.
The length and internal d ia of the vessel are 100 cm and 30 cm. Determine increase in diameter. :->0.0095 cm
30. A cylindrical vessel whose ends are closed by means of rigid flange plates, is made of steel plate 4 mm thick.
The length and internal dia of the vessel are 100 cm and 30 cm. Determine the longitudinal stress due to an internal pressure of 2 N/mm2 :->37.5N/ mm2
The longitud inal stress is :->75N/ mm2
31. A cylindrical vessel whose ends are closed by means of rigid flange plates, is made of steel plate 4 mm thick.
The length and internal dia of the vessel are 100 cm and 30 cm. Determine the hoop stress due to an internal pressure of 2 N/mm2 :->75N/mm2
32. A frame is completely analysed when :->the variation in direct stress, shear and moment is found **throughout the frame**
33. A joint of a frame is subjected to three tensile force P, Q and R equally inclined to each other. If P = 10 tonnes,
the other forces will be such that :->Q and R each is equal to 10 tonnes
34. A joint of a frame is subjected to three tensile forces A, B and C equally inclined to each other. If A = 10 kN,
the other forces will be :->B=10 kN, C=10 kN
35. A member is being balanced at its end by two inclined members carrying equal force. For equilibr ium the angle
between the inclined bars must be :->1200
36. A one dimensional structure is one which :->one dimension is much larger than the other two
37. A pin jointed frame with number of members 'm' and number of joints 'j' will be a perfect frame, if : ->m = 2j - 3
38. A pin jointed plane frame with `j' number of joints and `n' number of members will be internally redundant, if :-
>n > (2j - 3)
39. A plane structure is a structure :->the various members of which lie in a plane
40. A pr ismatic bar when subjected to pur e bend ing assumes the shape of :->arc of a circle
41. A seamless water main 1 m in dia is required to carry water under a head of 100 m. If the maximum permissible
tensile stress in the metal is 500 kg/cm2, the thickness of metal required would be :->10 mm
42. A simply supported beam `A' of length l, breadth b and depth d carries point load `W'. Another beam `B' has the
same length and depth but its breadth is doubled. The deflection of beam `B' will be ....as compared to beam
`A' :->1/2
43. A simply supported beam is subjected to a central concentrated load `W'. The slope at the two ends is given by
:->
44. A simply supported beam of circular c/s with diameter `d' and length `l carries a concentrated load `W' at the
centre of the beam. The strength of the beam is proportional to :->d/

45. A simply supported beam of length l carries a load varying uniformly from zero at left end to maximum at right
end. The maximum bending moment occurs at a distance of :->l/**from left end**
46. A simply supported beam of length L carries two equal unlike couples M at two ends. If the EI = constant, the
central deflection is :->
47. A simply supported beam of span L carrying a u.d.l. registers a defection of y cm at the centre. If the s pan of the
beam is doubled, the defection at the centre for the same u.d.l. would be :->16y
48. A simply supported beam of span L carrying a u.d.l. registers a defection of y cm at the centre. If the u.d.l.is
doubled, the defection at the centre fo r the same span wou ld be :->2y
49. A simply supported beam which carries a udl load over the whole span is propped at the centre of the span so
that the beam is held to the level of the end supports, the reaction of the prop will be equal to :->5/8 the distributed load
50. A spher ical pressure vessel is made of thin magnesium plate 0.25 cm thick. The main d iameter o f the sphere is
600 cm and allowable stress in tension is 900 kg/cm2. The safe internal gas pressure for the vessel would be :-
>1.5 kg/cm2
51. A spherical shell of 1.5 m dia has 1 cm thick wall. Determine the pressure that can increase its volume by 10
cm3. Take E = 2 t imes 105 N/ mm2 and 1/m = 0.3 :->0.437 N/ mm2
52. A spherical shell of 80 cm dia is subjected to an internal pressure of 2 N/mm2. Find the thickness required for
the shell, if the allowable stress is 100 N/mm2. :->0.4 cm
53. A spherical shell of 80 cm dia is subjected to an internal pressure of 2 N/mm2. Find the change in volu me, if the
allowable stress is 100 N/mm2. Take E = 2 times 105 N/mm2 and 1/m = 0.3 :->0.00105
54. A statically determinate structure is the one which :->can be analysed with the equations of statics alone
55. A steel cylinder 20 m long having a mean diameter of 3 m and a wall thickness of 20 mm is to contain
co mpressed air at a pr essure of 4 MN/m2. The poisson's ratio is 0.3 and Young's modulus of cylindrical material
is 210GN/m2. The longitudinal stress in the cylinder material will be :->120 MN/m
56. A steel cylinder 20 m long having a mean diameter of 3 m and a wall thickness of 20 mm is to contain
co mpressed air at a pr essure of 4 MN/m2. The poisson's ratio is 0.3 and Young's modulus of cylindrical material
is 210GN/ m2. The tangential stress in the cylinder material will be :->300 MN/ m2
57. A steel cylinder 20 m long having a mean diameter of 3 m and a wall thickness of 20 mm is to contain
co mpressed air at a pr essure of 4 MN/m2. The poisson's ratio is 0.3 and Young's modulus of cylindrical material
is 210GN/m2. The change in length caused by the internal pressure will be :->5.7 mm
58. A steel cylinder 20 m long having a mean diameter of 3 m and a wall thickness of 20 mm is to contain
co mpressed air at a pr essure of 4 MN/m2. The poisson's ratio is 0.3 and Young's modulus of cylindrical material
is 210GN/m2. The change in diameter due to the internal pressure will be :->3.6 mm
59. A thick cylinder designed as per the theory of thin cylinders, will be :->on unsafe side
60. A thick cylinder of internal radius Ri and the external radius Ro is subjected to internal fluid pressure pi. Then
the minimum radial str ess is :- >0
61. A thick cylinder of internal radius Ri and the external radius Ro is subjected to internal fluid pressure pi. Then
the maximum rad ial stress is :->pi
62. A thick cylinder of internal radius Ri and the external radius Ro is subjected to internal fluid pressure pi. Then
the maximum circumfer ential str ess is :->
63. A thick cylinder of internal radius Ri and the external radius Ro is subjected to internal fluid pressure pi. Then
t he mini mum c ir cumfer ent ial stre ss is :->
64. A thick pressure vessel is always used for the generation of steam, as it can with stand .... pressures. : -
>low
65. A thick spherical shell is subjected to an internal fluid pressure p. then the radial stress at any radius x is given
by :->

66. A thick spherical shell is subjected to an internal fluid pressure p. then the circumferential stress at any radius x
is given by :->
67. A thick spherical shell is subjected to an internal fluid pressure p. then the radial stress at any radius x is given
by :->
68. A thin cylinder contains fluid at a pressure o f 30 kg/cm2, the inside dia of the shell is 60 cm and the tensile stress in the material is to be limited to 900 kg/cm2. The shell must have minimum wall thickness of :->10 mm
69. A thin cylinder designed as per the theory of thick cylinders, will be :->on safer side
70. A thin cylinder is subjected to an external fluid pressure. The hoop stress is :->compressive
71. A thin cylinder is the one in which :->the variation is hoop stress along the thickness can be neglected
72. A thin cylinder of dia 100 mm and thickness 5 mm is subjected to a internal fluid pressure of 10 N/mm2. the
hoop stress is :->100 N/ mm2
73. A thin cylinder pipe is tested for internal fluid pressure. If it has failed due to hoop tension mainly, the crack
will be :->longitudinal
74. A thin cylindrical steel pressure vessel of dia 6 cm and wall thickness 3 mm is subjected to an internal fluid
pressure of intensity `p'. If the ultimate strength of steel is 3600 kg/cm2, the bursting pressure will be :->360 kg/cm2
75. A truss is completely analysed, when :->the direct stresses in all the members are found
76. A two dimensional structure is one which :->two dimensions are very much larger than the third
77. A uniform beam of effective length L, fixed at one end and loaded uniformly, will have maximum deflection at
:->3/8L from free end
78. A unifo rm beam of effective length L, fixed at one end and lo aded at the centre, will have maximum deflection
at :->L/**from free end**
79. By assuming that all the forces acting on a pin connected truss are co-planar and act at joints only it can be
expected that all the members will be subjected to :->direct stresses only
80. For a thin cylinder the ratio longitudinal stress/hoop stress is :->1/2
81. For a thin longitudinal cylinder the ratio hoop stress/longitudinal stress is :->2
82. For analyzing pin jointed frames by the method of joints, the joints must be selected in succession such that : -
>only two unknown forces exist at that joint
83. For analyzing pin jointed frames by the method of joints, the number of equations of static equilibr ium available
is :->any number of members but only three members with unknown forces
84. Free body diagram is :->the diagram of the body or a part of the body in isolated equilibrium
85. Hoop stress is :->circumferential tensile stress
86. If a cantilever beam subjected to a hydrostatic load with zero intensity at the free end and W at the fixed end.
The maximum deflection is :->
87. If a cylinder is made up of thin-walled cylindrical sheets or laminations, the hoop stress will be of :-
>the most
favourable distribution with more or less uniform distribution over the entire thickness of compound shell
88. If a simply supported beam subjected to a triangularly distr ibuted load with its apex of magnitude `W' at the mid
span. The maximum deflection is :->
89. If M, I and R denote the bending moment, the moment of inertia and the radius of curvature of the beam, which
will represent the rate of loading :->
90. If M, I and R denote the bending moment, the moment of inertia and the radius of curvature of the beam, which

will represent the bending moment :->
91. If M, I and R denote the bending moment, the moment of inertia and the radius of curvature of the beam, which
of the fo llowing equatio n is correct :->
92. If the deflection at the free end of a uniformly loaded cantilever beam is 15 mm and the slope of the deflection
curve at the free end is 0.02 radian, then the length of the beam is :->1 m
93. If the deflection at the free end of a uniformly loaded cantilever beam of length 1 m is equal to 7.5 mm, the
slope at the free end is :->0.02 radian
94. If the length of a simply supported beam carrying a point load at the centre is doubled, the deflection at the
centre will beco me :->eight times
95. If the width `b' and depth `d' of a simply supported beam loaded at the centre are interchanged, the deflection at
96. If two forces acting at a joint are not along the same straight line, then for the equilibrium of the joint : ->each
force mu st be zero
97. In a compound cylinder, after shrinking-on if the radius at the junction is to be r, the internal radius of the outer
cylinder should be less than by d 1 and the external radius of the inner cylinder is greater than by d 2. The circumferential strain is :->dr/r
98. In a compound cylinder, after shrinking-on if the radius at the junction is to be r, the internal radius of the outer
cylinder should be less than by d 1 and the external radius of the inner cylinder is greater than by d2. The
circumferential strain at the junction of the inner cylinder :-> d2/r
the centre will change in the ratio :->(d/b)2
99. In a compound cylinder, after shrinking-on if the radius at the junction is to be r, the internal radius of the outer
cylinder should be less than by d 1 and the external radius of the inner cylinder is greater than by d2. The
circumferential strain at the junction of the outer cylinder :-> d1/r
100. In a compound cylinder, after shrinking-on if the radius at the junction is to be 10 cm, the internal radius
of the outer cylinder should be less than by 0.02 cm and the external radius of the inner cylinder is greater than
by 0.04. The circumferential strain at the junction of the outer cylinder :->0.02
101. In a conical tank the maximum meridional stress occurs when the tank is :->three quarter full
102. In a conical tank, the maximum hoop stress occurs when the tank is :->quarter full
103. In a cylinder wound with wire under tension, the cylinder will be before the introduction of fluid, under
:->hoop compression
104. In a p in jointed frame it is sufficient if the fo rces in all the members meeting at a joint are : - >co-planar
and concurrent
105. In a pin jointed frame the members meeting at a joint must be so arranged that :->the axes of all the
members are concurrent and coplanar
106. In a p in jointed plane frame all the lo ads are assumed to act :->in the plane of the frame
107. In a thick cylinder for internal fluid pressure, the hoop stress will be maximum at :->inner surface
108. In a thick cylinder the hoop stress, along the thickness :->is of parabolic variation
109. In a thick cylinder the var iation in hoop stress along the thickness is :->
110. In a thin spherical shell of radius `r', wall thickness `t' when subjected to an internal pressure `p' the total
force no rmal to the diameter plane would be :-> pi pr2
111. In case of compound cylinder s, the radial stress in both the inner and outer cylinders at their junction is
:->same
112. In case of compound cylinder s, the stress induced in the inner cylinder is :->compressive hoop

113. In case of compound cylinder s, the stress induced in the o uter cylinder is :->tensile hoop
114. In case o f thin cylindrical shell with hemispherical ends :->the thickness of cylindrical shell is more **than that of spherical ends**
115. In case of thin walled cylinders the ratio of hoop strain to longitudinal strain is :-
>
116. In case of thin walled cylinders the ratio of hoop strain to volumetric strain is :-
>
117. In case of thin walled cylinders the ratio of hoop stress to radial stress is :->1/2
118. In case of thin walled cylinders the ratio of longitudinal strain to volumetric strain is :-
>
119. In case o f thin walled cylinders the ratio of longitu dinal stress to shear stress is :->4
120. In gener al in p lane framed deter minate structures in equilibrium, if `m' is nu mber of members `j' is number of joints and `r' is the number of reaction components, then :->m + r = 2j
121. In s beam ABC, AB is of length `l' and simply supported. The span BC is of length l/4 and over hang over support B. At the free end of span BC, a point load `W' is acting. The slope at the support A of the overhang beam is :->
122. In the case of thick cylinders, the longitudinal stress :->is uniform throughout the thickness
123. In two forces acting at a joint are not acting along the same straight line, then for equilibrium of the joint
:->both forces must be zero
124. Lame's theory is associated with :->thick cylindrica l shells
125. Slope at the end of a simply supported beam of span `l' with u.d.l w/unit length over the entire span is :
-
>
126. Structs are load carrying members o f a frame which are subjected to :->axial compressive force
127. System A is a simply supported beam with a load P at mod span. System B is the same beam but the load is replaced by a udl of intensity P/L where `L' is the span. The mid span deflection of system B will :-
>be
less than that of system A at mid span
128. The analysis of a structure is :->calculating the magnitude and nature of various straining actions at **salient points of the structure**
129. The assumption in the theory of bending that the material is homogeneous and isotro pic and has the same value o f Young's modu lus in tension and compression implies that :->the stresses are proportional strains at all fibres
130. The assumption that the cross sections plane before bending remain plane even after bending means :-
>the strains in the fibres are proportional to the distances from the neutral axis
131. The basic form of a pin jointed frame is a :->triangle
132. The circumferential joint of two shells is classified as :->lap joint
133. The deflection by moment area method is given by :->Ax-/EI
134. The design of thin cylindrical shells is based on :->hoop stress
135. The equations of compatibility are written based on :->the geometry of the defo rmed structure under **the action of several forces acting**
136. The expressio nat any section for a beam is equal to :->B.M at the section
137. The expressio nat any section for a beam is equal to :->load intensity at the
section
138. The hoop stress in a riveted cylindrical shell of dia (d), thickness (t), efficiency of the joint is and subjected to an internal pressure (p) is :->pd/ 2t
139. The hoop stress in a thin cylindrical shell is :->circumferential tensile stress
140. The hoop stress in the case of a thin spherical shell will be :->
141. The initial tension in the wire wound on a thin cylinder, upon introduction of fluid under pressure, will
:-
>increa se
142. The longitudinal stress in a thin cylinder subjected to internal fluid pressure of ? will be :->s d/4t
143. The maximum deflection of a fixed beam carrying a central load W is :->
144. The product of EI is called :->flexural rigidity
145. The radial pressure on the outer circumference of a thick cylinder is equal to :->atmospheric pressure

146. The ratio of central deflection in a beam freely supported at both ends to that when the beam is fixed at
both ends and subjected to a central load W in both the cases would be :->4
147. The ratio of hoops stress in cylinder to hoop stress in spherical shell is equal to :->2
148. The ratio of maximum deflection of a beam to its span is called :->modulus of rigidity of the beam
149. The ratio of the maximum deflection of a cantilever beam with an isolated load at its free end and with a
u.d.l. over its entire span, is :->8/3
150. The safe working pressure for a spherical vessel 1.5 m dia and 1.5 cm wall thickness with limiting
151. The statement that ``the deflection at any point in a beam subjected to any load system is given by the partial derivative of the strain energy stored w.r.t. the load acting at that point in the direction in which the deflection is described'' is known as :->the first theorem of Castigliano
152. The volumetric strain in a thin spherical shell will be :->
153. The volumetric strain in the case of a thin cylinder subjected to internal pressure s, is :->
154. Thick walled cylinders are supposed to resist the pressure above :->2500 kg/cm2
tensile stress of 450 kg/cm2 would be :->18 kg/cm2
155. Ties are load carrying members of a frame which are subjected to :->axial tensile force
156. Two clo sed thin vessels, one cylindr ical and the other spherical with equal internal d ia and wall thickness are subjected to equal internal fluid pressure. The ration of hoop stresses in the cylindrical to that of
sph erical vessels is :->2
157. Two inclined struts connected by a hinge at the ends and suppor ting a load at the joint cannot be supported o ver two masonry walls because :->the walls cannot take up horizontal component since tension develops due to bending
158. What is the maximum shear stress induced in a thin cylindrical shell subjected to an internal fluid pressure `p'? :->pD/8t
159. When a hollow thick cylinder is shrunk on to another thick cylinder, the inner cylinder will be subjected
to :->hoop compression with maximum at inner surface
160. When a thick cylinder is subjected to external fluid pressure only, hoo p stress will be maximum at :->inner surface
161. When a thick cylinder is subjected to external pressure only, maximum radial pressure will occur at :->out er surface
162. When a thick cylinder is subjected to internal fluid pressure only, maximum radial pressure will occur at
:->outer surface
163. When a thin cylindrical shell is subjected to an internal pressure, there will be :->an increase in **diameter and length of the shell**
164. When the compound cylinder is subjected to internal pressure, the stress induces is :->tensile hoop
165. When the water in a closed vessel freezes, the cylinder will first rupture :->longitudinally
166. Which of the following represents the shear force at a section of the beam :->