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Subject Name & Code : Mechanics of Solids (PCME405) Exam Name : Q1

1. Whenever some external system of forces acts on a body, it undergoes some deformation.As the body undergoes some deformation, it sets up some resistance to the deformation. This resistance per unit area to deformation , is called [B]

A) Strain B) Stress C) Pressure D) Modulus of elasticity

2. The unit of stress in S.I. units is [D]

A) N/mm^2 B) Kn/mm^2 C) N/m^2 D) Any one of these

3. The deformation per unit length is called [D]

A) Tensile stress B) Compressive stress C) Shear stress D) Starin

4. The unit of strain is [D]

A) N-mm B) N/mm C) mm D) no unit

5. Strain is equal to [B]

A) L B) δL/L C) Lx.δL D) L + δL

6. When a body is subjected to two equal and opposite pushes, as a result of which the body tends to reduce its length, the stress and strain induced are [B]

A) Tensile B) Compressive C) Both tensile and compressive D) None

7. When a body is subjected to two equal and opposite pulls, as a result of which the body tends to extend its length, the stress and strain induced is [C]

A) compressive stress, tensile strain B) tensile stress, compressive strain C) tensile stress, tensile strain D) compressive stress, compressive strain

8. When a body is subjected to two equal and opposite forces, acting tangentially across the resisting section, as a result of which tends to shear off across the section, the stress and strain induced is [D]

A) tensile stress, tensile strain B) compressive stress , compressive strain C) shear stress,tensile strain D) shear stress, shear strain

9. Which of the following is a proper sequence [A]

A) proportional limit, elastic limit, yielding.failure
B) elastic limit, proprotional limit,yielding,failure
C) yielding, proportional limit ,elastic limit, failure
D) none

10. Hook's law holds good upto [B]

A) Yielding point
B) Elastic limit
C) Plastic limit
D) Breaking point

11. Whenever a material is loaded within elastic limit stress is……..to strain [B]

A) equal to
B) directly proportional to
C) inversely proportional to
D) none

12. The ratio of linear stress to the linear strain is called [B]

A) modulus of rigidity
B) modulus of elasticity
C) bulk modulus
D) poissons ratio

13. The unit of modulus of rigidity is same as those of [D]

A) stress, strain and pressure
B) stress, force and modulus rigidity
C) strain, force and rigidity
D) stress, pressure and modulus of rigidity

14. When a change in length takes place, the strain is known as [A]

A) linear strain
B) lateral strain
C) volumetric strain
D) shear strain

15. The change in length due to a tensile or compressive force acting ona body is given by [B]

A) P.l.A / E
B) Pl / ae
C) E / P.L.A
D) AE / Pl

16. The modulus of elasticity for mild steel is approximately equal to [D]

A) 10KN/mm^2
B) 80kn/mm^2
C) 100KN/mm^2
D) 210KN/mm^2

17. Young's modulus may be defined as the ratio of [C]

A) linear stress to lateral strain
B) lateral strain to linear strain
C) linear stress to linear strain
D) shear stress to shear strain

18. Modulus of rigidity may be defined as the ratio of [D]

A) linear stress to lateral strain
B) lateral strain to linear strain
C) linear stress to linear strain
D) shear stress to shear strain

19. The unit of Young's modulus is [B]

A) N-mm B) N/mm^2 C) mm D) no unit

20. Which law is also called as the elasticity law? [C]

A) Bernoulli's law B) Stress law C) Hooke’s law D) Poisson’s law

21. When a bar of length 'l' and diameter 'd' rigidly fixed at the upper end and hanging freely then the total elongation produced in the bar due to its own weight is [B]

A) Wl/2E B) Wl ^ 2/2E C) Wl ^ 3/2E D) Wl ^ 4/2E

22. The deformation of a bar under its own weight is ……the deformation, if the same body is subjected to a direct load equal to weight of the body [B]

A) equal to B) half C) double D) quadruple

23. The elongation of a conical bar under its own weight is…..that of prismatic bar of the same length [C]

A) equal to B) half C) one-third D) two-third

24. The length of conical bar is 'l', diameter of base is 'd' and weight per unit volume is W. It is fixed as its upper end and hanging freely.the elongation of bar under the action of its own weight will be [C]

A) Wl2/2E B) wl2/4E C) wl2/6E D) wl2/8E

25. Strain rosetters are used to [B]

A) measure shear strain B) measure linear strain C) measure volumetric strain D) relieve strain

26. A bar of length L meters extends by 'l' mm under a tensile force of P.The strain produced in the basr is [D]

A) L / L B) 0.1l / l C) 0.01l / L D) 0.001l / L

27. The extension of a circular bar tapering uniformly from diameter d1 at one end to diameter d2 at the other end and subjected to an axial pull of P is given by [C]

A) DL=4PE/PLd^2 B) DL=4PLd^2/PE C) DL=4PL/PEd1d2 D) DL=4PLE/Pd1d2

28. Highest value of stress for which Hooke’s law is applicable for a given material is called _____ [C]

A) Stress limit B) Strain limit C) Proportional limit D) Significant limit

29. The ultimate tensile stress for mild steel is .....the ultimate compressive stress. [C]

A) equal to B) less than C) more than D) none

30. The maximum stress produced in a bar of tapering section is at [A]

A) smaller end B) larger end C) middle D) anywhere

31. Modular ratio of the two materials is the ratio of [C]

A) linear stress to linear strain B) shear stress to shear strain C) their modulus of elasticities D) their modulus od rigidities

32. The shear modulus of the most materials with respect to the modulus of elasticity is [B]

A) Equal to half B) Less than half C) More than half D) None of these

33. A rod is enclosed centrally in a tube and the assembly is tightened by rigid washers. If the assembly is subjected to a compressive load,then [C]

A) rod is under compression B) tube is under compression C) both tube and rod are under compression D) tube is under tension and rod is under compression

34. A bolt is made to pass through a tube and both of them are tightly fitted with the help of washers and nuts . If the nut is tightened, then [D]

A) nolt and tube are under tension B) bolt and tube are under compression C) bolt is under compression and tube is under tension D) bolt is under tension and tube is under compression

35. When a bar is subjected to a change of temperature and its deformation is prevented, the stress imduced in the bar is [D]

A) Tensile stress B) Compressive stress C) Shear stress D) Thermal stress

36. A steel bar of 5mm is heated from 15°c to 40°c and it is free to expand.the bar will induce [A]

A) No stress B) Shear stress C) Tensile stress D) Compressive stress

37. When a bar is cooled to -5°c, it will develop [C]

A) No stress B) Shear stress C) Tensile stress D) Compressive stress

38. A bar of copper and steel from a composite system, which is heated to a temperature of 40C. The stress induced in the copper bar will be [B]

A) Tensile B) Compressive C) Shear D) Zero

39. The thermal stress in a bar is .....proportional to the change in temperature [A]

A) directly B) indirectly C) unpredictable D) inversely

40. The maximum strain energy stored at elastic limit is _____ [B]

A) Resilience B) proof resilience C) Elasticity D) Malleability

41. If there is a fall in the temperature of a composite body, then a member having greater coefficient of linear expansion will be subjected to a [B]

A) Compressive stress B) Tensile stress C) Shear D) None

42. The thermal or temperature stress is a function of [D]

A) increase in temperature B) modulus of elasticity C) coefficient of linear expansion D) all of these

43. Which of the following statement is correct? [D]

A) The stress is the pressure per unit area B) The strain is sxpressed in mm C) Hooks law holds good upto the breaking point D) Stress is directly proportional to strain within elastic limit

44. The deformation of the bar per unit length in the direction of the force is known as [A]

A) Linear strain B) Lateral strain C) Volumetric strain D) Shear strain

45. Every direct stress is always accompained by a strain in its own direction and an opposite kind of strain in every direction, at right angles to it . Such a strain is known as [B]

A) Linear strain B) Lateral strain C) Volumetric strain D) Shear strain

46. The ratio of the lateral strain to the linear strain is called [D]

A) modulus of elasticity B) modulus of rigidity C) bulk modulus D) poissons ratio

47. Poissons ratio is the ratio of linear strain to the [B]

A) Volumetric strain B) Stress C) lateral strain D) strain

48. The poissons ratio of the steel varies from [A]

A) 0.23 to 0.27 B) 0.25 to 0.33 C) 0.31 to 0.34 D) 0.32 to 0.42

49. The poissons ratio for cast iron varies from [B]

A) 0.23 to 0.27 B) 0.25 to 0.33 C) 0.31 to 0.34 D) 0.32 to 0.42

50. When a bar length l,width b and thickness t is subjected to a pull of P, its [C]

A) lenth, width and thickness increases B) length, width and thickness decreases C) length increase, width and thickness increase D) length decreases, width and thickness increases

51. The ratio of change in volume to the original volume is called [C]

A) Linear strain B) Lateral strain C) Volumetric strain D) Poissons ratio

52. When a bar of length l, width b and thickness t is subjected to a push of P, its [D]

A) length, width and thickness increases B) length, width and thickness decreases C) length increase, width and thickness increase D) length decreases, width and thickness increases

53. The volumetric strain is the ratio of the [D]

A) original thickness to the change in thickness B) change in thickeness to the original thickness C) original volume to the change in volume D) change in volume to the original volume

54. When a body is subjected to three mutually perpendicular stresses, of equal inrensity, the ratio of direct stress to the corresponding volumetric strain is known as [C]

A) Youngs modulus B) Modulus of rigidity C) bulk modulus D) poissons ratio

55. The relation between Youngs modulus (E) and bulk modulus (K) [D]

A) K = 3m-2/me B) K = me/3m-2 C) K = 3(m - 2)/mE D) K= mE/3(m - 2)

56. The ratio of the bulk modulus to youngs modulus for a poissons ratio of 0.25 will be [B]

A) 1/3 B) 2/3 C) 1 D) 3/2

57. The ratio of shear modulus to the modulus of elasticity for a poissons ratio of 0.4 will be [C]

A) 5/7 B) 6/5 C) 5/14 D) 14/5

58. If the modulus of elasticity for a given material is twice its modulus of rigidity, then bulk modulus is equal to [C]

A) 2c B) 3c C) 2c/3 D) 3c/2

59. The youngs modulus of a material is 125Gpa and poissons ratio is 0.25. The modulus of rigidity of the material is [B]

A) 30 Gpa B) 50 gpa C) 80 Gpa D) 100 Gpa

60. Which of the following statement is wrong ? [D]

A) The deformation of the bar per unit length in th direction of the force is called linear strain B) The poisson ratio is the ratio of lateral strain to the linear strain C) The ratio of change in volume to the original volume is called volumetric strain D) The bulk modulus is the ratio of linear stress to the linear strain

61. A shear stress across a plane, is always accompained by a balancing shear stress across the plane which is_____ it . [A]

A) normal to B) tangential to C) along D) parallel

62. Within elastic limit, shear stress is ..... Shear strain [C]

A) Equal to B) Less than C) directly proportional to D) inversely proportional to

63. Shear modulus is the ratio of [D]

A) Linear stress to linear strain B) Linear stress to lateral strain C) Volumetric strain to linear strain D) Shear stress to shear strain

64. A localised compressive stress at the area of contact between two members is known as [C]

A) Tensile stress B) Bending stress C) Crushing stress D) Shear stress

65. The plane, which carry no shear stress, are known as [A]

A) Principal planes B) Oblique planes C) Simple planes D) Shear planes

66. The direct stress, across a principal plane, is known as [B]

A) major stress B) principal stress C) minor stress D) none

67. When a body is subjected to a direct tensile stress in one plane, then maximum normal stress occurs at a section inclined at ....to the normal of the section . [A]

A) 0 degrees B) 30 degrees C) 45 degrees D) 90 degrees

68. When a body is directly subjected to a tensile stress, the maximum normal stress is equal to the [C]

A) Tangential stress B) Normal stress C) Direct tensile stress D) None

69. Which law states the when a number of loads are acting on a body, the resulting strain, according to principle of superposition, will be the algebraic sum of strains caused by individual loads? [B]

A) Hooke's law B) Principle of superposition C) Lami’s theorem D) Strain law

70. How the total strain in any body subjected to different loads at different sections can be calculated? [A]

A) The resultant strain is the algebraic sum of the individual strain B) The resultant strain calculated by the trigonometry C) The resultant will be through Lame’s theorem D) None of the mentioned

71. What is the relation between maximum stress induced due to sudden loading to maximum stress the gradual loading? [B]

A) Maximum stress in sudden load is equal to the maximum stress in gradual load B) maximum stress in sudden load is half to the maximum stress in gradual load C) Maximum stress in sudden load is twice to the maximum stress in gradual load D) Maximum stress in sudden load is four times to the maximum stress in gradual load

72. Which test is conducted to measure the ability of a material to resist scratching, abrasion, deformation and indentation? [C]

A) Creep test B) fatigue test C) Hardness test D) Compression test

73. Which test is conducted to measure the endurance limit of the material? [B]

A) Creep test B) fatigue test C) Compression test D) Hardness test

74. Photo stress method is _____ [A]

A) stress analysis method B) creep test C) ultra violet test D) none of the mentioned

75. What is the factor of safety? [B]

A) The ratio of total stress to the permissible stress B) the ratio of ultimate stress to the permissible stress C) The ratio of ultimate stress to the applied stress D) The ratio of ultimate stress to the modulus of elasticity

76. Which one of the following has the largest value of thermal coefficient? [D]

A) Brass B) copper C) Steel D) Aluminium

77. The length, Young’s modulus and coefficient of thermal expansion of bar P are twice that of bar Q. What will be the ration of stress developed in bar P to that in bar Q if the temperature of both bars is increased by the same amount? [C]

A) 2 B) 8 C) 4 D) 16

78. A cube with a side length of 1m is heated uniformly a degree celcius above the room temperature and all the sides are free to expand. What will be the increase in the volume of the cube? Consider the coefficient of thermal expansion as unity. [D]

A) Zero B) 1 m^3 C) 2 m^3 D) 3 m^3

79. The thermal stress is a function of _____ P. Coefficient of linear expansion Q. Modulus of elasticity R. Temperature rise [D]

A) P and Q B) Q and R C) Only P D) Only R

80. What is the stress-strain curve? [B]

A) It is the percentage of stress and stain B) it is the relationship between stress and strain C) It is the difference between stress and strain D) None of the mentioned

81. The shear force and bending moment are zero at th the free end of cantilever beam if it carries a [C]

A) Point load at free end B) Point load at middle of its length C) uniformly distributed load over the whole length D) none of the given

82. The bending of a cantilever beam of length L and carrying a uniformly distributed load of W per unit length is …….. at the fixed end. [D]

A) Wl/4 B) Wl^2/2 C) Wl D) Wl/2

83. The maxinmum bending moment of a cantilever beam of length L and carrying uniformly distributed load W per unit length lies at [B]

A) Free end B) The middle of its length. C) fixed end D) unpredictable

84. The shear force diagram for a cantilever beam of length L and carrying a gradually varying load from zero at free end and W per unit length at fixed end is [D]

A) Horizontal straight lingth B) Vertical straight line C) inclined line D) parabolic curve

85. The bending moment diagram for a cantilever beam of length L and carrying a gradually varying load of W from zero at free end and w per unit length at fixed end is [A]

A) Parabolic curve. B) Rectangle C) Triangle D) None

86. The shear force of cantilever beam of length l and carrying gradually varying load from zero at free end and w per unit length at fixed end is…….. At the fixed end. [C]

A) Zero B) Wl/4 C) wl/2 D) wl

87. The bending moment diagram of a cantilever beam of length l and gradually varying load from zero at free end and w per unit length at fixed end is…….. At the fized end. [D]

A) Wl^2/2 B) Wl C) wl/2 D) wl/6

88. The bending moment at the ends of a simply supported beam will be_____ [B]

A) Maximum B) 0 C) minimum D) 1

89. The maximum bending moment of simply supportyed beam of span of length L and carrying point load W at the centre of beam is. [A]

A) Wl^2/4 B) Wl/2 C) wl D) wl/4

90. The bending moment for a simply supported beam loaded at its centre is [B]

A) A right angled triangle B) An issoscles trinagle C) an equilateral triangle D) a rectangle

91. The maximum bending moment of simply supported beam with central point load lies at the [A]

A) Point of loading B) Supports C) middle D) not known

92. The shear force of a simply supported beam carrying a central load changes sign at [B]

A) Left end B) Its mid point C) right end D) none

93. The shear force at the centre of simply supported beam carrying a uniformly distrubed load of W per unit length is. [A]

A) Zero B) wl/2 C) wl/4 D) wl/8

94. The bending moment in the centre of a simply supported beam carrying a uniformly distributed load of w per unit length is [D]

A) Zero B) wl/2 C) wl/4 D) wl/8

95. The shear force at the ends of a simoly supported beam carrying a uniformly distributed load of w per unit length is [C]

A) Zero at both ends B) wl at one end and -w at other end C) wl/2 at one end and -wl/2 at other end D) wl^2/2 at one end and -wl^2/2 at other end

96. The shear force diagram for a simply supported beam carrying uniformly distributed load of w per unit length consists of [B]

A) One right angled triangle B) Two right angled triangle C) one equilateral triangle D) two equilateral triangle

97. The bending moment diagram for a simply supported beam with gradually distributed load of W per unit length will be [D]

A) A horizontal line B) A vertical line C) a inclined line D) a parabolic curve

98. The shear force at the centre of simply supported beam carrying a gradually varying load from zero at both ends to w pere meter at centre is [A]

A) Zero B) Wl/4 C) wl ^ 2 D) wl/2

99. The bending momoent at the centre of a simply supported beam with gradually varying load from zero at both ends and w per meter at centre is [B]

A) 1 B) wl/4 C) wl ^ 2 D) wl/2

100. The maximun bending moment for a simply supported beam with gradually varying load from zero at both ends to w per meter at centre. Lies at the [A]

A) left end B) centre of beam. C) right end D) none

101. The point of contraflexure is a point where [B]

A) Shear force changes sign B) Bending moment changes sign C) Shear force is maximun D) Bending moment is maximun

102. When the shear force at the point is zero, then bending moment is …….. at that point. [C]

A) Zero B) Minimum C) maximum D) infinity

103. In a simply supported beam carrying a uniformly distributed load w per unit length the point of contraflexure. [D]

A) lies in the centre of beam B) lies at the ends of beam C) depends upon the length of beam D) does not exist

104. When there is sudden increase or decrease in shear force diagram between any two points, it indicates that there is a [A]

A) Point load at two ends B) No load between two points C) uniformly distributed load between two points D) uniformly varying load between two points

105. When the shear force diagram between two points is an inclined straight line it indicates that there is a between the two points. [A]

A) Uvl B) Point load C) UDL D) None

106. When the shear force diagram is a parabolic curve between two points, it indicates that there is a [D]

A) Point load at two points B) No loading between two points C) Uniformly distributed load between two points D) Uniformly varying load between two points

107. When there is no increase or decrease in shear force between two points, it indicates that there is no change in_____ between these points. [A]

A) The bending moment B) Load C) Shear D) None

108. Which of the following statement is wrong? [C]

A) The continious beam has more than two supports at the ends B) A uniformly distributed load spreads uniformly over the whole length of beam. C) The bending moment is maximum where shear force is maximum. D) None

109. In a beam where shear force changes sign, the bending moment will be [C]

A) zero B) minimum C) maximum D) infinity

110. The point of contraflexure occurs in [C]

A) cantilever beams B) simply supported beams C) overhanging beams D) fixed beams

111. _____ is a horizontal structural member subjected to transverse loads perpendicular to its axis. [C]

A) Strut B) Column C) Beam D) Truss

112. U.D.L stands for? [D]

A) Uniformly diluted length B) Uniformly developed loads C) Uniaxial distributed load D) Uniformly distributed loads

113. Moving train is an example of ____ load. [C]

A) Point load B) Cantered load C) Rolling load D) Uniformly varying load

114. Continuous beams are _____ [B]

A) Statically determinate beams B) statically indeterminate beams C) Statically gravity beams D) Framed beams

115. A beam which extends beyond it supports can be termed as _____ [A]

A) Over hang beam B) over span beam C) Isolated beams D) Tee beams

116. Units of U.D.L? [A]

A) KN/m B) kn - m C) KN - m × m D) KN

117. Shear force is unbalanced _____ to the left or right of the section. [B]

A) Horizontal force B) vertical force C) Inclined force D) Conditional force

118. SI units of shear force is _____ [C]

A) kn/m B) kn - m C) kN D) m/N

119. Hogging is_____ [A]

A) Negative bending moment B) positive shear force C) Positive bending moment D) Negative shear force

120. At the point of contraflexure, the value of bending moment is _____ [A]

A) Zero B) Maximum C) Can't be determined D) Minimum

121. _____ positive/negative bending moments occur where shear force changes its sign. [C]

A) Minimum B) zero C) Maximum D) Remains same

122. A simple support offers only _____ reaction normal to the axis of the beam. [B]

A) Horizontal B) Vertical C) Inclined D) Moment

123. To avoid _____ stresses in beams, one end of the beam is placed on the rollers. [C]

A) Compressive B) Pyro C) Temperature D) Tensile

124. _____ support develops support moment. [C]

A) Hinged B) Simple C) Fixed D) Joint

125. Hinge support is called as _____ [D]

A) Socket joint B) Swivel joint C) Ball joint D) Pin joint

126. For a simply supported beam, the moment at the support is always _____ [B]

A) Maximum B) zero C) Minimum D) Cannot be determined

127. At hinge, the moments will be _____ [D]

A) Maximum B) minimum C) Uniform D) Zero

128. What is variation in SFD, if the type of loading in the simply supported beam is U.D.L is ____ [B]

A) Rectangle B) linear C) Trapezoidal D) Parabolic

129. The rate of change of shear force is equal to _____ [C]

A) Direction of load B) Change in bmd C) Intensity of loading D) Maximum bending

130. In SFD, vertical lines are for _____ [B]

A) Point loads B) UDL C) UVL D) LDP

131. A cantilever beam loaded with udl throughout, the maximum shear force occurs at____ [B]

A) Free end B) Fixed end C) At centre D) At point of contraflexure

132. A simply supported beam of span 1 m carries a point load “w” in centre determine the shear force in the half left of the beam. [C]

A) W/3 B) W/4 C) W/2 D) W

133. Point of inflection is known as _____ [B]

A) Point of regurrence B) Point of contraflexure C) Point of rigid factor D) Point of flexural moment

134. When SF is zero, the bending moment is _____ [A]

A) Zero B) Maximum C) Very difficult to say D) Minimum

135. A cantilever beam subjected to point load at its free end, the maximum bending moment develops at the _____ of the beam. [B]

A) Free end B) fixed end C) Centre D) Point of inflection

136. Bending moment in a beam is maximum when the _____ [C]

A) Shear force is minimum B) Shear force is maximum C) Shear force is zero D) Shear force is constant

137. Positive bending moment is known as _____ [B]

A) Hogging B) Sagging C) Ragging D) Inflection

138. A simply supported beam of span “x” meters carries a udl of “w” per unit length over the entire span, the maximum bending moment occurs at _____ [B]

A) At point of contra flexure B) centre C) End supports D) Anywhere on the beam

139. Number of points of contra flexure for a double over hanging beam. [C]

A) 3 B) 2 C) 4 D) Infinite

140. Maximum bending moment in a cantilever beam subjected to udl (w)over the entire span (l). [C]

A) wl B) wl ^ 3 C) w l ^ 2 D) w

141. What is the variation in the BM, if the simply supported beam carries a point load at the centre. [A]

A) Triangular B) Rectangular C) Trapezoidal D) Other quadrilateral

142. What is the bending moment at end supports of a simply supported beam? [C]

A) Maximum B) Minimum C) Zero D) Uniform

143. What is the maximum shear force, when a cantilever beam is loaded with udl throughout? [A]

A) w × l B) w C) w/l D) w + l

144. Sagging, the bending moment occurs at the _____ of the beam. [B]

A) At supports B) Mid span C) Point of contraflexure D) Point of emergence

145. What is the maximum bending moment for simply supported beam carrying a point load “W” kn at its centre? [D]

A) W knm B) w/m knm C) W × l kNm D) W × l/4 kNm

146. _____ curve is formed due to bending of over hanging beams. [A]

A) Elastic B) Plastic C) Flexural D) Axial

147. The relation between slope and maximum bending moment is _____ [B]

A) Directly proportion B) inversely proportion C) Relative proportion D) Mutual incidence

148. The beam which is fixed at one end and free at other end is called [D]

A) Simply supported beam B) Fixed beam C) overhanging beam D) cantilever beam

149. The shear force of a cantilever beam of length l carrying a UDL of w per unit length is at the free end [A]

A) 0 B) wl/4 C) wl/2 D) wl

150. A UDL may be assumed to behave like a_____at center of gravity of the load for all sorts of calculations [A]

A) Point load B) Uvl C) Both point load and UVL D) None

151. A continuous beam is one which is [C]

A) Fixed at both ends B) Fixed at one end and free at the other C) supported on more than two supports D) Extended beyond the supports

152. The bending moment at a point on a beam is the_____of all the forces on either side of the point [A]

A) sum B) difference C) product D) none

153. When a load on the free end of a cantilever bem is increased, failure will occur at [B]

A) The free end B) The fixed end C) Center of the beam D) At a distance of 2/3 from free end

154. The beam extended beyond the supports is called ------- [C]

A) Simply supported beam B) Fixed beam C) Overhanging beam D) Cantilever beam

155. Which of the following statements is correct? [B]

A) A continuous beam has only two supports at the end B) A UDL spreads uniformly over the entire length of the beam C) The bending moment is maximum where shear force is maximum. D) The maximum bending moment of a simply supported beam of length l with central load w is wl/8

156. The beam extended beyond the supports is called, [C]

A) Simply supported beam B) Fixed beam C) overhanging beam D) cantilever beam

157. A concentrated load of P acts on a simply supported beam of span L at a distance 3L from the left support. The bending moment at the point of application of the load is given by: [D]

A) PL/3 B) 2PL/3 C) PL/9 D) 2PL/9

158. If a beam is subjected to pure bending, then the deformation of the beam is_____ [A]

A) Arc of circle B) Triangular C) Trapezoidal D) Rectangular

159. A simply supported beam of length 'l' is subjected to a symmetrical uniformly varying load with zero intensity at the ends and intensity w (load per unit length) at the mid span. What is the maximum bending moment? [B]

A) (1) 3wL2/8 B) (2) wL2/12 C) (3) wL2/24 D) (4) 5wL2/12

160. The bending moment (M) is constant over a length segment (I) of a beam. The shearing force will also be constant over this length and is given by [D]

A) M/I B) M/2I C) M/4I D) None