1. A golden rule for procurement of construction store is that
(a) $\frac{1}{2}$ of construction stores should be at work site and $\frac{1}{2}$ under procurement
(b) $\frac{2}{3}$ of construction store be at work site and $\frac{1}{3}$rd under procurement
(c) Whole of construction stores at work sites
(d) $\frac{3}{4}$ of construction stores be at work site and $\frac{1}{4}$ under procurement
ANS: B

2.Final technical authority of project is
(a) Assistant engineer
(b) Executive Engineer
(c) Superintending Engineer
(d) Chief Engineer
ANS:D

3. First stage of large construction work
(a) Contract
(b) Design
(c) Conception
(d) Study & Evaluation
ANS:C

4. Military type of organisation known as
(a) Line organisation
(b) Functional organisation
(c) Line & Staff organisation
(d) none of these
ANS:A

5. The chart which gives an estimate about the amount of materials handling between various work stations is known as
(a) Flow chart
(b) Process Chart
(c) Travel chart
(d) Operation chart
ANS:C

6. Actual performance of a chart is called
(a) An event
(b) Activity
(c) Duration
(d) Anyone of these
ANS:B

7. PERT requires
(a) Single time estimate
(b) Double time estimate
(c) Triple time estimate
(d) none of these
ANS:C

8.Float/Slack represents the difference between the
(a) Earliest completion time and latest allowable time
(b)Latest allowable time and earliest completion time
(c)Earliest completion time and normal expected time
(d) Latest allowable time and normal allowable time
ANS:A

9. Free float is equal to
(a) Latest allowable event occurrence time + early finish time
(b) Earliest event occurrence time+ early finish time
(c) Latest allowable event occurrence time- early finish time
(d) Earliest event occurrence time- early finish time
ANS:D

10. In critical path of construction planning, free float can be
(a) > Total float
(b) = Total float
(c) > Independent float
(d) < Independent float
ANS:C

11. Critical activity has
(a) Maximum float
(b) Minimum float

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(c) Zero float
(d) Average float
ANS:C

12.Which of the following is a dummy activity?
(a) Excavation of foundation
(b) Laying the foundation concrete
(c) Awaiting the arrival of concrete material
(d) Curing the foundation concrete
ANS:C

13. At an event, other than final event if no activity
emerges, it results in an error called
(a) Looping
(b) Dangling
(c) Interfacing
(d) Splicing
ANS:B

14. If the path of activities leads back into itself resulting error in the network is known as
(a) Looping
(b) Dangling
(c) Interfacing
(d) Splicing
ANS:A

15. Fulkerson's rule is used for numbering of
(a) Events
(b) Activities
(c) Initial events
(d) Dummies
ANS:A

16. Trenching machines cannot be used for
(a) Rocks
(b) Hard clay
(c) Muddy clay
(d) loose materials
ANS:A

17. Most suitable equipment for excavating trenches when sides are permitted to established their angles of repose without shoring is
(a) Shovel
(b) Hoe
(c) Dragline
(d) Clamshell
ANS:C

18. When it is necessary to brace the walls of trench to hold the sheeting on trench walls, best excavating equipment is
(a) Hoe
(b) Dragline
(c) Clamshell
(d) Trenching equipment
ANS:C

19.Fill factor range of power shovel when used for well blasted rock is
(a) 0.8-0.9
(b) 0.6-0.75
(c) 0.4-0.5
(d) 0.9-1.0
ANS:D

20. If for an activity optimistic time is 2 days, pessimistic time is 8 days and most likely time is 3 days, then the expected time is
(a) 3.5 days
(b) 3.67 days
(c) 3.75 days
(d) 4 days
ANS:B

21. Which of the following is PERT event?
(a) Fixing of doors
(b) Plastering of walls
(c) Concrete cured
(d) Selection of sites
ANS:C

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22. Bottom-dump wagons are suitable for handling which of the following
(a) Wet sticky clay
(b) Sand and Gravel
(c) Quarry rocks
(d) any type of material
ANS:B

23.Which of the following excavates is most suitable for digging under water?
(a) Dragline
(b) Hoe
(c) Clam shell
(d) Dipper Shovel
ANS:A

24. Capital recovery factor is given by
(a) $(1+i)^n$
(b) $\frac{i}{(1+i)^n-1}$
(c) $\frac{i}{(1+i)^n}$
(d) $\frac{i\,(1+i)^n}{(1+i)^n-1}$

ANS:D

25. Weigh- Batching proceeds on
(a) Weighing the content of each bag
(b) Accurately estimating the weight of each material to be used in each batch
(c) Assumption of declared weight in each bag of cement
(d) None
ANS:B

26. Cost benefit studies are essential to
(a) Assess the total cost of work.
(b)Evaluate the viability and worthwhileness of taking up the project.
(c) Ascertain the relevant escalation in prices.
(d) Monitor expenditure
ANS:B

27. Basic action involved in sheep foot roller is
(a) Kneading
(b) Pressing
(c) Tamping
(d) Vibration
ANS:A

28. A machine cost Rs 16000. By constant rate of declining balance of depreciation, its salvage value after an expected life of 3 years is Rs 2000. The rate of depreciation is
(a) 0.25
(b) 0.40
(c) 0.30
(d) 0.50
ANS:D

29. Grades is used mainly for
(a) Trimming and finishing
(b) Shaping and trimming
(c) Finishing and shaping
(d) Finishing, shaping and trimming
ANS:D

30. Which of the following is a rode?
(a) Quartz
(b) Mica
(c) Gypsum
(d) None
ANS:C

31. Approximate ration between the strength of cement concrete at 7 days and 28 days is
(a) $^3/_4$
(b) $^2/_3$
(c) $^1/_2$
(d) $^1/_3$
ANS:B

32.If 'P' is standard consistency of cement the amount of water used in conducting initial setting time test on cement is
(a) 0.65p

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(b) 0.85p
(c) 0.60
(d) 0.8p
ANS:B

33. Ratio of young's modulus of high tensile steel to that of mild steel is about
(a) 0.5
(b) 1.0
(c) 1.5
(d) 2.0
ANS:B

34. High alumina cement is produced by fusing together a mixture of
(a) Limestone and Bauxite
(b) Limestone, Bauxite and gypsum
(c) Limestone, gypsum and clay
(d) Limestone, gypsum, bauxite, clay and chalk
ANS:A

35. Which of the following steel is used in manufacture of rails?
(a) Manganese steel
(b) Mild steel
(c)Cast steel
(d) Bessemer steel
ANS:A

36. A gauged mortal is obtained by adding which of the following ingredients to cement?
(a) Sand stone
(b) Sand and surkhi
(c) Sand and lime
(d) Surkhi alone
ANS:C

37. Temperature range in a cement kiln is
(a) 500-1000°c
(c) 1000-1200°c
(c) 1300-1500°c
(d) 1600-2000°c
ANS:C

38. Density of cement is
(a) 1440 Kg/m^3
(b) 1550 Kg/m^3
(c) 3340 Kg/m^3
(d) 2500 Kg/m^3
ANS:A

39. Which of the following timber is suitable for making sports goods?
(a) Mulberry
(b) Mahogany
(c) Sal
(d) Deodar
ANS;A

40. A good building stone shouldn't absorb water more than
(a) 5%
(b) 10%
(c) 15%
(d) 20%
ANS:A

41. Which of the following trees yield hard wood?
(a) Deodar
(b) Chir
(c) Shisham
(d) Pine
ANS:C

42. Age of tree is known by examining
(a) Cambium layer
(b) Annular ring
(c) Medullary rays
(d) Heartwood
ANS:B

43. Which of the following ingredients of brick earth
enables brick to retain its shape?
(a) Alumina
(b) Silica
(c) Iron
(d) Magnesia
ANS:B

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44. Addition of pozzolana to ordinary Port land cement increases
(a) Bleeding
(b) Shrinkage
(c) Permeability
(d) Heat of hydration
ANS:B

45. Pressure acting on stones in stone masonry construction should be
(a)Along the direction of bedding planes
(b) At 45° to direction of bedding planes
(c) At 60° to direction of bedding planes
(d)Perpendicular to direction of bedding planes
ANS:D

46. Minimum thickness of wall where single Flemish bond can be used is
(a) $^1/_2$ brick thick
(b) 1 brick thick
(c) 1 & $\frac{1}{2}$ brick thick
(d) 2 brick thick
ANS:C

47. Amount of water used for 1 kg of distemper is
(a) 0.2 litre
(b) 0.4 litre
(c) 0.6 litre
(d) 0.8 litre
ANS:C

48. In any good staircase, maximum and minimum pitch respectively should be
(a) 90° and 0°
(b) 75° and 30°
(c) 60° and 10°
(d) 40° and 25°
ANS:D

49. Couple close roof is suitable for maximum span of
(a) 2.5m
(b) 3.5m
(c) 4.5m
(d) 5.5m
ANS:C

50. Weight of timber to be reckoned at moisture content of
(a) 0
(b) 4%
(c) 8%
(d) 12%
ANS:D

51. A good brick, when immersed in water bath for 24 hrs shouldn't absorb more than
(a) 20% of its dry weight
(b) 30% of its saturated weight
(c) 10% of its dry weight
(d) 20% of its saturated weight
ANS:A

52. Le-chatelier's device is use for determination of
(a) Setting time
(b) Soundness
(c) Tensile strength
(d) Compressive strength
ANS:B

53. Main ingredient of cement responsible for initial setting of cement
(a) Dicalcium silicate
(b) Tricalcium silicate
(c) Tricalcium aluminte
(d) All of the above
ANS:C

54. Split tensile strength of M_{15} Grade concrete when expressed as % of compressive strength is
(a) 10-15%
(b) 15-20%
(c) 20-25%
(d) 25-30%

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ANS:A

55. Tenacity is used to determine
(a) High tensile strength
(b) High compressive strength
(c) Both (a) & (b)
(d) None of (a) & (b)
ANS:A

56. Percentage of Silica in a good brick earth lies between
(a) 5-10%
(b) 20-30%
(c) 50-60%
(d) 70-80%
ANS:C

57. Putlog is a
(a) Horizontal member
(b) Vertical member
(c) Inclined member
(d) Transverse member
ANS:D

58. Surkhi added to lime mortar to
(a) Prevent shrinkage
(b) Decrease setting time
(c) Increase bulk
(d) Impart hydraulicity
ANS:D

59. Slate is formed by metamorphic action on
(a) Shale
(b) Lime stone
(c) Sandstone
(d) Granite
ANS:A

60. Types of roof which slopes in two direction with a break in the slope on each sides is known as
(a) Gable roof
(b) Hip roof
(c) Gambrel Roof
(d) Mansard roof
ANS:C

61.Maximum shear stress in rectangular beam
(a) $\frac{4}{3}$ τ avg
(b) $\frac{3}{2}$ τ avg
(c) $\frac{2}{3}$ τ avg
(d) $\frac{3}{4}$ τ avg
ANS:B

62. A cantilever beam of span L carries a concentrated load 'W' at free end. If the width 'b' of beam is constant throughout the span, then for beam to have uniform strength, depth'd' at free end is
(a) $\frac{6wl}{bf}$
(b) $\frac{3wl}{bf}$
(c) $\frac{\sqrt{6wl}}{bf}$
(d) $\frac{\sqrt{6wl}}{bf}$
ANS:D

63. If the modules of rigidity are equal to bulk modules then, Poisson's ratio will be
(a) $\frac{1}{8}$
(b) $\frac{1}{4}$
(c) $\frac{1}{2}$
(d) 1
ANS:A

64. Stress at which a material fractures under large number of stress reversal is called
(a)Endurance limit
(b) Creep
(c)Ultimate strength
(d) Residual stress
ANS:A

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65. Which of the following is not correctly matched?
(a) Macaulay's method -Deflection of beams
(b) Euler's method -Theory of column
(c) Eddy's theorem - Torsion of shafts
(d) Lame's method - Thick cylinder
ANS:C

66. A solid shafts of circular cross section is subjected to a Torque 'T' which produces maximum shear stress fs in the shaft. The diameter of shafts should be
(a) $\frac{\sqrt{\pi fs}}{16T}$
(b) $\frac{\sqrt[3]{\pi fs}}{16T}$
(c) $\frac{\sqrt{16T}}{\pi fs}$
(d) $\frac{\sqrt[3]{16T}}{\pi fs}$
ANS:D

67. A Mohr's circle reduces to a point when body is subjected to
(a) Pure shear
(b) Uniaxial stress
(c) biaxial stress
(d) None
ANS:B

68. For design of cast iron member, the most appropriate theory of failure
(a) Maximum stress theory
(b) Mohr's theory
(c) Rankine theory
(d)Maximum shear theory
ANS:C

69. Thick walled cylinder are supposed to resists pressure above
(a) 1000 kg/cm^2
(b) 2000 kg/cm^2
(c) 2500 kg/cm^2
(d) 4000 kg/cm^2
ANS:C

70. In a cylinder having thin walls, hoop stresses formed will act through
(a) Longitudinal section
(b) Radial section
(c) Circumferential section
(d) All of the above
ANS:A

71. Effective length of a chimney fixed in ground as compared to its actual length will be
(a) L=2l
(b) L=$\frac{l}{2}$
(c) L=l
(d) L=$\sqrt{2}l$
ANS:C

72. If numbers of members provided is more than the requirements, then frame will be classified as
(a) Perfect frame
(b) Redundant frame
(c) Portal frame
(d) Deficient frame
ANS:B

73. Shear stress intensity is minimum at
(a) Axis of shaft
(b) Surface of shaft
(c) Inside layer of shaft
(d) All the above
ANS:A

74. In a rectangular column, as per middle 3rd rule, eccentricity is about
(a) $b/3$
(b) $b/4$
(c) $b/6$
(d) $b/8$
ANS:C

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75. Shear stress on principle plane is
(a) Maximum
(b) Minimum
(c) Both (a) and (b)
(d) Zero
ANS:D

76. Plane of maximum obliquity is inclined to major principle plane at an angle
(a) $\frac{\pi}{2} + \frac{\theta\, max}{4}$
(b) $\frac{\pi}{4} + \frac{\theta\, max}{4}$
(c) $\frac{\pi}{4} + \frac{\theta\, max}{2}$
(d) $\frac{\pi}{4} + \theta\, max$
ANS:C

77. If a body carries 2 unlike principle stresses, the maximum shear stress is given by
(a) $\frac{1}{2}\times$ Difference of principle stresses
(b) $\frac{1}{2}\times$ (Sum of principle stresses)
(c) difference of principle stresses
(d) Sum of principles stresses
ANS:B

78. In a fixed beam having UDL over the whole span, moments will calculated will be
(a) $\frac{wl^2}{8}$
(b) $\frac{wl^2}{12}$
(c) $\frac{wl^3}{8}$
(d) $\frac{wl^3}{12}$
ANS:B

79. When a body is subjected to direct tensile stress 'p' in one plane, then tangential or shear stress on an oblique section of a body inclined at θ is
(a) p sin 2 θ
(b) p cos 2 θ
(c) p tan 2 θ
(d) $\frac{p}{2}$ sin 2 θ
ANS:D

80. Moment of inertia of a rectangle of base 'b' and height 'h' about base of rectangle
(a) $\frac{bh^3}{12}$
(b) $\frac{bh^3}{6}$
(c) $\frac{bh^3}{2}$
(d) $\frac{bh^3}{3}$
ANS:D

81. Most economical section of mild steel is
(a) I- section
(b) Circular- section
(c) Rectangular- section
(d) Channel- section
ANS:A

82. Maximum deflection of simply supported beam with UDL is
(a) $\frac{wl^3}{48\,EI}$ (b) $\frac{5}{384}\cdot\frac{wl^3}{EI}$
(c) $\frac{wl^3}{19\,EI}$ (d) $\frac{wl^3}{384\,EI}$
ANS:B

83. Fixed beams are those whose
(a) End slope is a straight line
(b) End slope remains curved
(c) End slope is zero
(d) End slope is infinite
ANS:C

84. Bending moment diagram of cantilever beam subjected to bending moment at free end will be
(a) Triangle
(b) Parabola
(c) Rectangle

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(d) Cubic parabola
ANS:C

85. Which of the following has the highest value of Poisson's ratio?
(a) Rubber
(b) Steel
(c) Aluminium
(d) Copper
ANS:A

86. At point of contra-flexure, blending moment is
(a) Maximum
(b) Minimum
(c) Zero/ changes sign
(d) none
ANS:C

87. Property which makes the material suitable to be shaped easily by hammering, bending, rolling etc without cracks or fractures is termed as
(a) Ductility
(b) Malleability
(c) Dilatability
(d) None
ANS:C

88. An electric pole is 10m high from the ground level. Its effective length for design purpose will be
(a) 7.07m
(b) 20m
(c) 10m
(d) 15m
ANS:B

89. If all the dimensions of prismatic bar of square cross-section suspended freely from the ceiling of a room are doubled, then total elongation produced under its own weight will increase by
(a) 8 times
(b) 3 times
(c) 4 times
(d) 2 times
ANS:C

90. Strain rosettes are used to measure
(a) Shear strain
(b) linear strain
(c) Volumetric strain
(d) Relieve strain
ANS:B

91. Factor of safety (F.O.S) for brittle material
(a) $\frac{Yield\ stress}{Working\ stress}$
(b) $\frac{Working\ stress}{Yield\ stress}$
(c) $\frac{Ultimate\ stress}{Working\ stress}$
(d) $\frac{Working\ stress}{Ultimate\ stress}$
ANS:C

92. Strain energy stored in a suddenly applied load is equal to _____ times gradually applied load
(a) $\frac{1}{2}$
(b) 2
(c) 4
(d) 3
ANS:C

93. A column with maximum equivalent length is
(a) Both end hinged
(b) 1 end fixed & other end free
(c) Both end fixed
(d) 1 end fixed & other end hinged
ANS:C

94. Leaf spring is supported at
(a) Ends and loaded at ends
(b) Ends and loaded at centre
(c) Centre and loaded at ends
(d) Centre and loaded anywhere
ANS:C

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95. Lame's theory is associated with
(a) Thin cylindrical shells
(b) Thick Cylindrical shells
(c) Direct and bending stresses
(d) none
ANS:B

96. Laminated springs are subjected to
(a) Direct stress
(b) Shear stress
(c) Bending stress
(d) None
ANS:C

97. Limit of proportionality depends on
(a) Area of cross-section
(b) Type of material
(c) Type of loading
(d) All of the above
ANS:B

98. Limiting value of Poisson's ratio is
(a) -1 & 0.5
(b) -1 & -0.5
(c) 1 & -0.5
(d) 0 & 0.5
ANS:A

99.In a rectangular shaft subjected to torsion, maximum shear stress occurs at
(a) Centre
(b) Corners
(c) Middle of smaller sides
(d) Middle of longer shaft
ANS:D

100. Shear stress distribution aver a rectangular cross-section of a beam follows
(a) Straight line path
(b) Parabolic path
(c) Circular path
(d) Elliptical path
ANS:B

101. In Charpy impact test specimen is supported as
(a) Cantilever beam
(b) Fixed beam
(c) Simply supported beam
(d) Continuous beam
ANS:C

102. Portion of beam between 2 sections is said to be pure bending when there is
(a) Constant B.M and zero S.F
(b) Constant S.F and zero B.M
(c) Constant B.M and constant S.F
(d) None
ANS:A

103. Slope at the end of a simply supported beam of span l with UDL over entire span is
(a) $\frac{wl^2}{16EI}$
(b) $\frac{wl^3}{16EI}$
(c) $\frac{wl^3}{24EI}$
(d) $\frac{wl^2}{24EI}$
ANS:C

104. For ductile material, most appropriate failure theory is
(a) Maximum shear stress theory
(b) Maximum principle stress theory
(c) Maximum principle strain theory
(d) Maximum shear strain theory
ANS:A

105. Diamond quadrilateral pyramid indenter is used in
(a) Vicker's hardness test
(b) Rockwell hardness test
(c) Brinell hardness test
(d) direct shear test
ANS:A

106. How is Izod test specimen supported?

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(a) Vertical Cantilever
(b) Simply supported
(c) Horizontal cantilever
(d) None
ANS:A

107. Core of a circular section of radius R is
(a) $\frac{R}{4}$
(b) R
(c) $\frac{R}{3}$
(d) $\frac{R}{2}$
ANS:A

108. Tenacity of a material is
(a) Ultimate strength in tension
(b) Ultimate strength in compression
(c) Ultimate Impact strength
(d) Ultimate shear strength
ANS:A

109. Impact test is used to determine
(a) Ductility
(b) Tenacity
(c) Toughness
(d) Malleability
ANS:C

110. Moment area theorem is a
(a) Force method
(b) Displacement method
(c) Stiffness method
(d) Iterative method
ANS:A

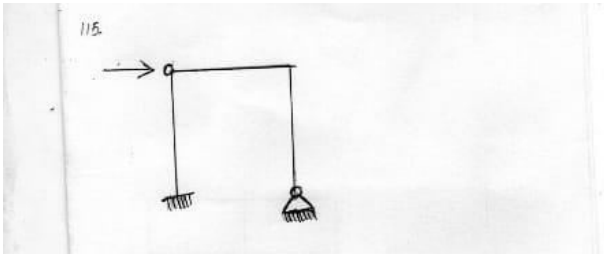
111. Castiglione's 2nd term theorem is also called
(a) Principle of least work
(b) Minimum strain energy
(c) Both (a) & (b)
(d) None
ANS:C

112. Calculation of virtual work is similar to
(a) Gradually applied load
(b) Suddenly applied load
(c) Both (a) & (b)
(d) None
ANS:B

113. Muller-Breslau principle in structural analysis is used for
(a) Drawing influence line diagram for any force function
(b) Superimposition of load effects
(c) Writing virtual work equations
(d) None
ANS:A

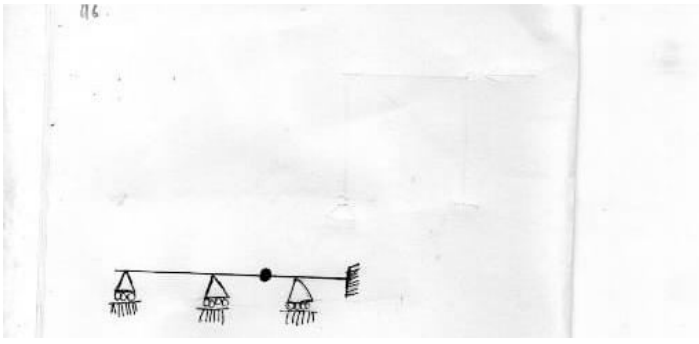
114. In moment description method, sum of distribution factors of all members meeting at any joint is
(a) Zero
(b) L 1
(c) > 1
(d) = 1
ANS:D

115.Determine kinematic indeterminacy of a frame is



a) 4 b) 6 c) 8 d) 10
ANS:C

116 Determine the static indeterminacy of a beam in fig below



a) 1 b) 2

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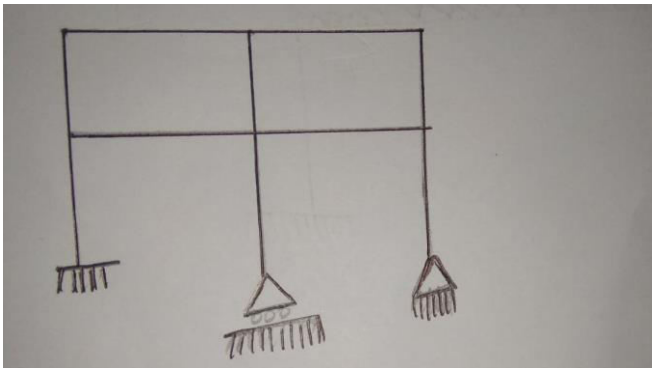
b) c) 3 d) 4
ANS:B

117. What is the kinematic indeterminacy for a frame shown below when members are inextensible?



a) 6 b) 11 c) 12 d) 21
ANS:B

118. A suspension bridge with 2 hinged stiffening girder
(a) Indeterminate by 1°
(b) Determinate by 1°
(c) A mechanism
(d) statically determinate
ANS:A

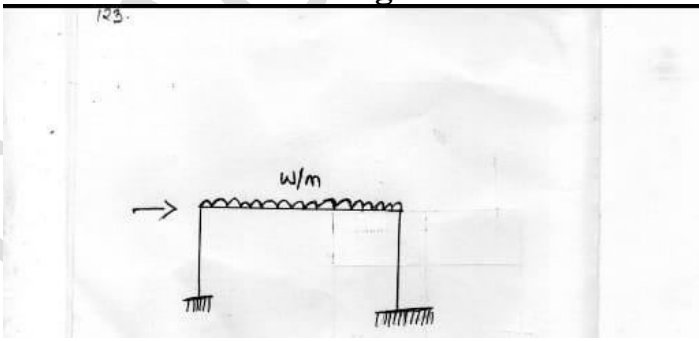
119. Conjugate beam falls under
(a) Force method
(b) Stiffness method
(c) Displacement method
(d) None
ANS:A

120. Bending moment at any section in a conjugate beam gives in actual beam
(a) Slope
(b) Curvature
(c) Deflection
(d) None
ANS:C

121. A simply supported beam having internal hinge is a
(a) Structure
(b) Mechanism
(c) Elastic body
(d) None
ANS:B

122. Strain energy stored in a simply supported beam of span 'l' and flexural rigidity EI due to central concentrated load W is
(a) $\frac{w^2l^3}{48EI}$
(b) $\frac{w^2l^2}{48EI}$
(c) $\frac{w^2l^2}{96EI}$
(d) $\frac{w^2l^3}{96EI}$
ANS:D

123. Frame shown in fig below has



a) 1 unknown reaction
b) 2 unknown reaction
c) 3 unknown reaction
d) 6 unknown reaction
ANS:D

124. Torsional stiffness of a member can be defined as
(a) Torque for unit moment
(b) Torque for unit twist
(c) Moment for unit twist
(d) Torsion for unit twist
ANS:B

125. Moment distribution method in structural analysis
can be treated as
(a) Force method
(b) Exact method
(c) Iterative method
(d) approximate method
ANS:C

126. Effect of arching a beam is

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(a) To reduce S.F
(b) Reduce B.M in span
(c) Increase B.M
(d) Increase S.F
ANS:B

127. A 3 hinged arch is
(a) Determinate
(b) Indeterminate
(c) Indeterminate by 1°
(d) None
ANS:A

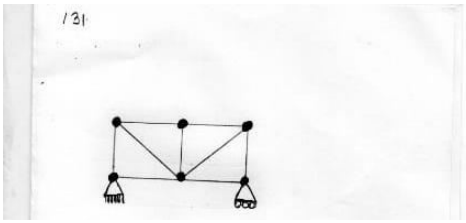
128. Load factor is equal to
(a) $\frac{Failure\ load}{working\ load}$
(b) $\frac{Live\ load}{Dead\ load}$
(c) $\frac{Working\ load}{Failure\ load}$
(d) $\frac{Dynamic\ load}{Working\ load}$

ANS:A

129. Design of structure based on static equilibrium is based on
(a) Lower bound theorem, safe
(b) Upper bound theorem, safe
(c) Both a & b
(d) None
ANS:A

130. Shape factor for solid circular section is
(a) $\frac{D}{2\pi}$
(b) $\frac{15}{2\pi}$
(c) $\frac{16}{3\pi}$
(d) $\frac{\pi D}{8}$
ANS:C

131. Kinematic indeterminacy of Truss shown below is



a) 7 b) 8 c) 9 d) 6
ANS:C

132. Williot Mohr's diagram is used to calculate
(a) Deflection of truss joints
(b) B.M of truss joints
(c) B.M and deflection
(d) None
ANS:A

133. Degree of freedom for fixed support
(a) 1
(b) 0
(c) 2
(d) 3
ANS:B

134. Graphical representation of total strain or elastic theory is
(a) Rhombus
(b) Rectangle
(c) Ellipse
(d) Hexagon
ANS:C

135. Maximum shear stress given by
(a) Rankine
(b) St. Venant's
(c) Haight's theory
(d) Guest and Tresca's theory
ANS:D

136. Carry over factor when far end is fixed is
(a) 0.5
(b) 0
(c) 1
(d) 2
ANS:A

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137. Ordinate of influence line diagram for bending moment
(a) Dimensionless
(b) Dimension of length
(c) Dimension of width
(d) Curved
ANS:B

138. Number of unknown internal forces in each member of a rigid jointed plane frame is
(a) 1
(b) 2
(c) 3
(d) 6
ANS:C

139. Degree of kinematic indeterminacy of pin-jointed space frame is
(a) 2j-r
(b) 3j-r
(c) j-2r
(d) j-3r
ANS:B

140. Sway calculations and non-sway calculations are carried out in a single operation in
(a) Kani's method
(b) Moment distribution method
(c) Unit load method
(d) None
ANS:A

141. According to IS specification, maximum pitch of rivets
in compression is
(a) Lesser of 200 mm and 12t
(b) Lesser of 200 mm and 16t
(c) Lesser of 300 mm and 32t
(d) Lesser of 300 mm and 24t
ANS:A

142. Effective length of battened column increased by
(a) 5%
(b) 10%
(c) 15%
(d) 20%
ANS:B

143. Slenderness ratio of lacing bar
(a) 150
(b) 120
(c) 130
(d) 145
ANS:D

144. Bearing stiffness in a plate girder is used to
(a) Prevent buckling of web
(b) Prevent excessive deflection
(c) Transfer load from top to bottom flange
(d) Decrease effective depth of web.
ANS:A

145. A fillet weld whose axis is parallel to direction of
force applied is known as
(a) End fillet weld
(b) Diagonal fillet weld
(c) Side fillet weld
(d) Flat fillet weld
ANS:C

146. Hudson's formula gives dead weight of truss bridge
as a function of
(a) Bottom chord area
(b) Top chord area
(c) Effective span of bridge
(d) heaviest axle load of engine
ANS:A

147. As per IS 800, maximum bending moment for design of purlin's can be taken as
(a) $\frac{wl}{6}$
(b) $\frac{wl}{8}$
(c) $\frac{wl}{10}$
(d) $\frac{wl}{12}$

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ANS:C

148. Maximum pitch of rivets used in steel stacks limited to
(a) 6t
(b) 10t
(c) 12t
(d) 16t
ANS:B

149. In case of timber structure, form factor for solid
circular cross-section is
(a) 1.18
(b) 1.414
(c) 1.67
(d) 1.81
ANS:A

150. Which of the following sections will have large shape factor?
(a) Rectangle
(b) I-section
(c) Solid circular section
(d) Diamond
ANS:D

151. Plastic section modulus of circular section of diameter 'd' is
(a) $\frac{d^3}{3}$
(b) $\frac{d^3}{4}$
(c) $\frac{d^3}{6}$
(d) $\frac{d^3}{8}$
ANS:C

152. For rivets in tension with counter-sunk heads, tensile value shall be
(a) Reduced by 33.3%
(b) Reduced by 25%
(c) Increase by 25%
(d) Increase by 33.3%
ANS:A

153. Nair diameter shouldn't be more than
(a) $t/6$
(b) $t/8$
(c) $t/10$
(d) $t/12$
ANS:A

154. Maximum deflection allowed in steel columns should be
(a) $l/250$
(b) $l/300$
(c) $l/300$
(d) $l/350$
ANS:D

155. Allowable maximum shear stress in rolled mild steel section is
(a) 945
(b) 1100
(c) 1340
(d) 1575
ANS:B

156. Rise of jack arch is kept about
(a) $\frac{1}{3}-\frac{1}{4}$ Of span
(b) $\frac{1}{4}-\frac{1}{6}$ Of span
(c) $\frac{1}{6}-\frac{1}{8}$ Of span
(d) $\frac{1}{8}-\frac{1}{12}$ Of span
ANS:D

157. Maximum depth of encased beam shouldn't exceed
(a) 450 mm
(b) 600 mm
(c) 750 mm
(d) 900 mm
ANS:C

158. Moment curvature relation at plastic hinge is
(a) Linear
(b) Parabolic

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(c) Constant moment for all curvatures
(d) same curvature for all moments
ANS:C

159. Self weight of plate girder is taken as
(a) $\frac{wl}{100}$
(b) $\frac{wl}{200}$
(c) $\frac{wl}{300}$
(d) $\frac{wl}{400}$
ANS:C

160. Effective throat thickness of a butt weld in case of incomplete penetration
(a) $^{7}/_{8}$ th thickness of thinner part joined
(b) $^{7}/_{8}$th thickness of thicker part joined
(c) $^{5}/_{7}$th thickness of thicker part joined
(d $^{5}/_{7}$th thickness of thinner part joined
ANS:A

161. Maximum slenderness ratio of steel members acting as wind bracing should be
(a) 180
(b) 350
(c) 250
(d) 400
ANS:B

162. As per IS 875 basic wind velocity of the country has been divided into
(a) 4 zones
(b) 6 zones
(c) 7 zones
(d) 5 zones
ANS:B

163. Minimum pitch provided in riveted steel tanks is
(a) 1.5 d
(b) 2.0 d
(c) 2.5 d
(d) 3.0 d
ANS:D

164. Maximum deflection of a beam shouldn't exceed
(a) $\frac{l}{180}$
(b) $\frac{l}{250}$
(c) $\frac{l}{325}$
(d) $\frac{l}{360}$
ANS:C

165. Diameter of bolt hole is usually taken as
(a) Gross diameter of bolt
(b) Nominal diameter + 1.5 mm
(c) Nominal diameter + 2.0 mm
(d) Nominal diameter of bolt
ANS:B

166. Maximum spacing of vertical stiffness
(a) 1.33 d
(b) 1.25 d
(c) 1.5 d
(d) 1
ANS:C

167. According to IS recommendation bridge approach should be straight for a minimum length of
(a) 25m
(b) 30m
(c) 15m
(d) 20m
ANS:C

168. A propped cantilever of span 'L' is subjected to a concentrated load at mid span. If Mp is the plastic moment capacity of beam, value of collapse load will be
(a) $\frac{12\,Mp}{L}$
(b) $\frac{8\,Mp}{L}$
(c) $\frac{6\,Mp}{L}$

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(d) $\frac{4\,Mp}{L}$

ANS:C

169. In C.G.I sheet pitch of corrugation should be
(a) 18 mm
(b) 75mm
(c) 146mm
(d) 32mm
ANS:B

170. In limit state approach, spacing of main reinforcement controls primarily
(a) Collapse
(b) Cracking
(c) Deflection
(d) Durability
ANS:B

171. Shear span is defined as the zone where
(a) Bending moment is zero
(b) Shear force is zero
(c) Shear force is constant
(d)Bending moment is constant
ANS:C

172. Limit of longitudinal reinforcement in a column is
(a) 0.15%-2%
(b) 0.8%-4%
(c) 0.8%-6%
(d) 0.8%-8%
ANS:C

173. Yield line theory results in
(a) Elastic solution
(b) Plastic solution
(c) Unique solution
(d) Upper bound solution
ANS:D

174. In limit state design, permissible bond stress in case of deformed bars is more than that in plain barsby
(a) 60%
(b) 50%
(c) 40%
(d) 25%
ANS:A

175. Minimum clear cover to main steel bars in slab, beam, column and footing respectively are
(a) 0,15,20,25
(b) 15,25,40,75
(c) 20,25,30,40
(d) 20,35,40,74
ANS:B

176. In 2-way slab, limiting deflection of slab is
(a) Primarily a function of long span
(b) Primarily a function of short span
(c) Independent of long or short span
(d) Dependent on long or short span
ANS:B

177. In flat slab without drops, total thickness of the slab shouldn't be less than
(a) $L/32$
(b) $L/6$
(c) $L/20$
(d) $L/10$
ANS:A

178. Concordant profile represents
(a) Bending moment diagram
(b) Willot-Mohr diagram
(c) Shear force diagram
(d) Influence line diagram
ANS:A

179. Deep beams are designed for
(a) Shear force
(b) Bending moment
(c) both (a) and (b)
(d) Bearing
ANS:B

180. Loss of stress with time at constant strain in steel is
(a) Relaxation

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(b) Creep
(c) Shrinkage
(d) Ductility
ANS:A

181. Which of the following section can resist torsional moment more efficiently?
(a) Unsymmetrical I-section
(b)Box section
(c) Solid rectangular section
(d) Symmetrical I-section
ANS:B

182. In limit state design of concrete structure, strain distribution is assumed to be
(a) Linear
(b) Non linear
(c) Parabolic
(d) Parabolic and rectangular
ANS:D

183. Minimum grade of reinforced concrete in sea water as per IS code 456:2000 is
(a) M15
(b) m20
(c) m30
(d) M40
ANS:C

184. Weight of 1 m^3 of RCC is
(a) 2400kg
(b) 1880kg
(c) 2140kg
(d) 1400kg
ANS:A

185. Design of 2-way slab simply supported on all its four edges and having no provision to prevent the corners from lifting is made of
(a) Rankine formula
(b) Rankine Grashoff formula
(c) Marcus formula
(d) None
ANS:B

186. For 1 bag of cement, quantity of water required is
(a) 100 kg
(b) 50 kg
(c) 35 kg
(d) 10 kg
ANS:C

187. With 4% moisture in cement, bulking may be
(a) 15%- 25%
(b) 4%-10%
(c) 2%- 4%
(d) 1%- 2%
ANS:A

188 Cube strength of concrete used for pre-stressed member shouldn't be less than
(a) 10 N/mm^2
(b) 25 N/mm^2
(c) 50 N/mm^2
(d) 35 N/mm^2
ANS:D

189 Approximate ratio of strength of cement concrete at 3 months to 28 days of curing is
(a) 1.15
(b) 1.30
(c) 1.0
(d) 0.75
ANS:A

190. Total amount of shrinkage in pre-tensional beam is
(a) 3×10^{-4}
(b) 3×10^{-5}
(c) 3×10^{-6}
(d) 3×10^{-7}
ANS:A

191. Thickened portion provided around column in flat slab is designated as
(a) Column head
(b) Capital
(c) Drop/drop panel
(d) All the above

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ANS:C

192. To determine modulus of rupture, the size of test specimen used is
(a) 150× 150× 500mm
(b) 100× 100× 700mm
(c) 150× 150× 700mm
(d) 100× 100× 500mm
ANS:C

193. 1% of void in concrete mix would reduce its strength by about
(a) 5%
(b) 10%
(c) 15%
(d) 20%
ANS:A

194. Recommended value of modulus ratio for reinforced brick work
(a) 18
(b) 30
(c) 40
(d) 58
ANS:

195. A continuous beam is deemed to be a deep beam when $\frac{l}{d}$ is less than
(a) 1.5
(b) 2.0
(c) 2.5
(d) 3.0
ANS:C

196. Maximum strain in concrete at the outermost compression fibre in limit state design of flexural member is
(a) 0.0020
(b) 0.0035
(c) 0.0050
(d) 0.0065
ANS:B

197. According to IS, pozzolana content in Portland pozzolana cement is
(a) 10-25%
(b) 25-35%
(c) 35-50%
(d) More than 50%
ANS:A

198. Which of the following theory is applicable for design of silo walls?
(a) Janssen's theory
(b) Rankine's theory
(c) Fuller theory
(d) Coulomb's theory
ANS:A

199. Percentage of voids in cement is approximately
(a) 25%
(b) 40%
(c) 60%
(d) 80%
ANS:B

200. Ultimate strength of steel used for pre-stressing is nearly
(a) 250 N/mm²
(b) 415 N/mm²
(c) 500 /mm²
(d) 1500 N/mm²
ANS:D

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