



JSSC JE

Civil Engineering

Mega Mock Test

(June 16th - June 17th 2022)

Questions & Answer Key

9. For the linear elastic structural system, minimization of potential energy yields
- A. Strain displacement relations
 - B. Constitutive relations
 - C. Equilibrium equations
 - D. Compatibility equation

Ans. D

10. The maximum deflection due to a uniformly distributed load w /unit length over entire span of a cantilever of length l and of flexural rigidity EI , is
- A. $WL^3/3EI$
 - B. $WL^4/3EI$
 - C. $WL^4/8EI$
 - D. $WL^4/12EI$

Ans. C

11. A 1 hr rainfall of 10 cm magnitude at a certain station has a return period of 50 years. The probability that a 1 hr rainfall of magnitude 10 cm or more will occur in each two successive years is:
- A. 0.0004
 - B. 0.04
 - C. 0.025
 - D. 0.0025

Ans. A

12. The height of the sink of wash basin above floor level is kept _____.
- A. 60 cm
 - B. 70 cm
 - C. 75 cm to 80 cm
 - D. 80 cm

Ans. C

13. The average pan coefficient for Class A Land pan is
- A. 0.80
 - B. 0.70
 - C. 0.90
 - D. 0.78

Ans. B

14. Bending and binding of steel is measured in
- A. cum
 - B. sqm
 - C. Quintal
 - D. Number

Ans. C

15. The first sight in levelling operation is
- A. BS
 - B. FS
 - C. IS
 - D. all the above

Ans. A

16. The process of providing smooth face and regular face to stones is known as:
- A. dressing
 - B. seasoning
 - C. quarrying
 - D. pitching

Ans. A

17. One cubic metre of mild steel weighs about?
- A. 7850 kg
 - B. 12560 kg
 - C. 3625 kg
 - D. 1000 kg

Ans. A

26. The precipitation caused by the lifting of an air mass due to the pressure difference is known as
- A. Convective Precipitation
 - B. Cyclonic Precipitation
 - C. Orographic Precipitation
 - D. Hail

Ans. B

27. If the average daily water consumption of a city is 1000 cum the peak hourly demand will be:
- A. 100 cum/hr
 - B. 112 cum/hr
 - C. 112.5 cum/hr
 - D. 105.5 cum/hr

Ans. C

28. Calculate the safe stopping sight distance (in m) for the descending gradient of 3% for a design speed of 80 km/h. Take coefficient of friction as 0.35 and total reaction time as 2 seconds.
- A. 110.82
 - B. 123.26
 - C. 1018.4 1
 - D. 1092

Ans. B

29. The width (m) of the narrow gauge is _____.
- A. 0.762
 - B. 1
 - C. 1.435
 - D. 1.676

Ans. A

30. To provide a cant in rails, wooden sleepers are cut to a slope at rail seat, which is known as:
- A. Coning
 - B. Cutting
 - C. Boxing
 - D. Adzing

Ans. D

31. Which one of the following method is used for the approximate estimation?
- A. Both central line and short wall and long wall method
 - B. Central line method
 - C. Plinth area method
 - D. Short wall and long wall method

Ans. C

32. The type of transition curve used in Indian railways is
- A. spiral
 - B. cubic parabola
 - C. lemiscate
 - D. S-curve

Ans. B

33. In the WCB system, a line is said to be free from the local attraction if the difference between the FB and BB is
- A. 0°
 - B. 90°
 - C. 180°
 - D. 270°

Ans. C

34. The shear strength in plastic undrained clay, is due to _____.
- A. inter-granular friction
 - B. internal friction
 - C. cohesion
 - D. none of these

Ans. C

35. What is the unit of measuring cornice?
- A. Cubic metre
 - B. Number
 - C. Running metre
 - D. square metre

Ans. C

36. A 30 m metric chain is found to be 10 cm too short throughout a measurement. If the distance measured is recorded as 300 m, what is the actual distance?
- A. 301 m
 - B. 299 m
 - C. 300.1 m
 - D. 310 m

Ans. B

37. A crop requires 19 cm of water in 14 days. then the duty of the crop is
- A. 266 hec/cum
 - B. 637 hec/cum
 - C. 1137 hec/cum
 - D. 864 hec/cum

Ans. B

38. Granite mainly composed of quartz and felsper particles is obtained from_____.
- A. Sedimentary rocks
 - B. Metamorphic rocks
 - C. Igneous rocks
 - D. All options are correct

Ans. C

39. Which of the following statements is false?
- A. Workability of the concrete mix decreases with an increase in the moisture content
 - B. Concrete for which preliminary tests are conducted, is called controlled concrete
 - C. Bulking of sand depends upon the fineness of grains
 - D. All option are correct

Ans. A

40. Transpiration is measured by
- A. Tensiometer
 - B. Phytometer
 - C. Lysimeter
 - D. Psychrometer

Ans. B

41. Calculate the effective flange width of the following T-beam:
Thickness of slab = $D_1 = 100\text{mm}$ Width of rib = $B = 300\text{mm}$ Depth of beam = $D = 500\text{mm}$ Centre to center distance of beam = 3.0m Effective span of beam = 6.0m Distance between points of contra flexure = $1 = 3.6\text{m}$
- A. 3000mm
 - B. 1900mm
 - C. 1600mm
 - D. 1500mm

Ans. D

42. Goose neck are used to connect
- A. Ferrules and stopcock
 - B. Stopcock and service pipe
 - C. Ferrules and service pipe
 - D. Ferrules, stopcock and service pipe

Ans. C

43. Consider the following statements:
Resource levelling means
- 1) Economical utilization of resources
 - 2) Gradual increase in resources
 - 3) Adjustment of resources to have the least variations
 - 4) Complete revamping of resources to suit the requirements
 - 5) Validating network depending on resource constraints

Which of these statements are correct?

- A. 1 and 2
- B. 2, 3 and 4
- C. 3 and 5
- D. 1, 2, 3, 4 and 5

Ans. C

44. If the bearing of AB = N40°W, bearing of BC = S70 °E, then the value of ∠ABC is
- A. 30 degree
 - B. 70 degree
 - C. 100 degree
 - D. None of these

Ans. A

45. Which of the seasoning method is adopted for the rapid seasoning of timber on large scale to obtain any desired moisture content?
- A. Air seasoning
 - B. Boiling process
 - C. Kiln seasoning
 - D. Water seasoning

Ans. C

46. Vane shear test is used to find out shear strength of:
- A. Sandy soil
 - B. Gravelly soil
 - C. Clayey soil
 - D. All options are correct

Ans. C

47. The following bearings were observed while traversing with a compass. Which stations are affected by local attraction?

Line	F.B.	B.B.
AB	104° 30'	284° 30'
BC	48° 15'	226° 0'
CD	290° 30'	115° 15'
DA	180° 15'	357° 15'

- A. A and D
- B. C and D
- C. B and C
- D. A and B

Ans. B

48. The ratio between peak hourly water demand and maximum daily demand (m³/hr) is
- A. 1.5
 - B. 1.8
 - C. 2.0
 - D. 2.7

Ans. A

49. A plain sedimentation tank has dimensions 100 x 50 x 3 m and receives a flow of 100000 m³/d. Calculate the surface overflow rate in m³/m²/day. Take density of particle = 2.65 g/cc and dynamic viscosity $\eta = 1.02 \times 10^{-2}$ cm²/sec:
- A. 5 m³/m²/day
 - B. 10 m³/m²/day
 - C. 15 m³/m²/day
 - D. 20 m³/m²/day

Ans. D

50. Which of the following is not a retarding admixture?
- A. Tartaric acid
 - B. Sugar
 - C. Gypsum
 - D. Sodium silicate

Ans. D

51. Total thrust on the vertical face of a retaining wall of height h, per unit run exerted by the retained earth weighing w per unit volume and angle of repose ϕ is given by
- A. $wh \frac{1 - \sin \phi}{1 + \sin \phi}$
 - B. $wh^2 \frac{1 - \sin \phi}{1 + \sin \phi}$
 - C. $\frac{wh^2}{2} \frac{1 - \sin \phi}{1 + \sin \phi}$
 - D. $\frac{wh^2}{3} \frac{1 - \sin \phi}{1 + \sin \phi}$

Ans. C

52. An axially loaded column is of 300 mm x 300 mm size. Effective length of column is 3m. What is the minimum eccentricity of the axial load for the column?
- A. 0
 - B. 10mm
 - C. 16mm
 - D. 20mm

Ans. D

53. Calculate the corrected staff reading at point A, if the staff reading is taken from an instrument which is set at a distance of 1.5 km from the point A 3.46
- A. 3.28
 - B. 3.3
 - C. 3.43
 - D. 3.48

Ans. B

54. Sapwood consists of:
- A. Innermost annular rings around the pith
 - B. Portion of timber between heartwood and cambium layer
 - C. Thin layers below the bark
 - D. Thin fibre which extends from the pith outwards and holds the annular rings together

Ans. B

55. The distance between the centroid of the area of tension reinforcement and the maximum compressive fibre in a reinforced concrete beam design is known as
- A. overall depth
 - B. effective depth
 - C. leaver arm
 - D. depth of neutral axis

Ans. B

56. The load carrying capacity of an individual friction pile is 250 KN. What is the total load carrying capacity of a group of 4 such piles with group efficiency as 0.78?
- A. 780 KN
 - B. 1100 KN
 - C. 1560 KN
 - D. 390 KN

Ans. A

57. The entrained air in concrete _____.
- A. increases workability
 - B. decreases workability
 - C. increases strength
 - D. None of these

Ans. A

58. Calculate the grade of concrete if modular ratio is 14 and factor of safety is 3
- A. M20
 - B. M25
 - C. M30
 - D. M40

Ans. A

59. Which of the following process includes chlorination of water above the break point?
- A. Plain chlorination
 - B. Dechlorination
 - C. Excess chlorination
 - D. Super chlorination

Ans. D

60. The precipitation caused due to upward movement of the air that is warmer than its surroundings
- A. cyclonic precipitation
 - B. convective precipitation
 - C. Orographic precipitation
 - D. frontal precipitation

Ans. B

61. In Brinell Hardness Test, the type of indenter used is?
- A. hard steel ball
 - B. mild steel ball
 - C. diamond cone
 - D. hard steel cone

Ans. A

62. The hook is provided at the end of stirrup to
- A. Prevent buckling of column
 - B. To prevent concrete from splitting outwards
 - C. To keep steel bar in position
 - D. All of the above

Ans. D

63. Boundary layer thickness is the distance from the surface of solid body in the direction perpendicular to the flow, where velocity of fluid is equal to :
- A. free-stream velocity
 - B. 0.89 times free-stream velocity
 - C. 0.75 times free-stream velocity
 - D. 0.99 times free-stream velocity

Ans. D

64. When the plasticity index of a soil is Zero, the Soil is:
- A. Sand
 - B. Silt
 - C. Clay
 - D. Silty Sand

Ans. A

65. Sinking fund method is useful in
- A. Depreciation
 - B. Obsolescence
 - C. Liquidation
 - D. Scrap value

Ans. A

66. According to IS : 456-200, side-face reinforcement should be provided when depth of web of a beam exceeds
- A. 650 mm
 - B. 700 mm
 - C. 725 mm
 - D. 750 mm

Ans. D

67. The permissible stress, to which a structural member can be subjected to, is known as _____.
- A. bearing stress
 - B. working stress
 - C. tensile stress
 - D. compressive stress

Ans. B

68. Coefficient of permeability of soil varies approximately as
- A. $(D_{10})^2$
 - B. $(D_{10})^{1/2}$
 - C. $(D_{10})^3$
 - D. $(D_{10})^{3/2}$

Ans. A

69. Runoff cannot be determined by
- A. Using infiltration curves
 - B. Using watershed simulation method
 - C. Using dilution techniques
 - D. Using Khosla's theory

Ans. C

70. If the stopping distance and average length of a vehicle are 18 m and 6 m respectively, then the theoretical maximum capacity (vehicles per hour) of a traffic lane at a speed of 10 m/sec is ($f=0.35$)
- A. 1500
 - B. 200
 - C. 2500
 - D. 3000

Ans. A

71. The assumption made in the theory of reinforced cement concrete beam is that
- A. All the tensile stresses are taken up by the steel reinforcement only
 - B. The steel and concrete are stressed within its elastic limit
 - C. There is sufficient bond between steel and concrete
 - D. All options are correct

Ans. D

72. Water-cement ratio is:
- A. The ratio of volume of water mixed in concrete to volume of cement used.
 - B. The ratio of weight of water mixed in concrete to weight of cement used.
 - C. The ratio of volume of water mixed in concrete to weight of cement used.
 - D. The ratio of mass of water mixed in concrete to weight of cement used.

Ans. B

73. The magnitude of tyre pressure controls the following:
- A. Total thickness of the pavement
 - B. Number of layers to be provided in pavement
 - C. Type of sub-base and base course
 - D. Quality of material to be used in the upper layers of pavement

Ans. D

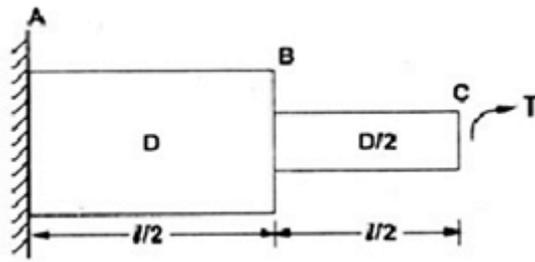
74. The maximum dry density and optimum moisture content of a soil is given by 1.65 gm/cc and 20.5% respectively. What is the percentage of air content of soil at OMC, if the specific gravity of particles is given by 2.65?
- A. 10.4
 - B. 15.5
 - C. 26.8
 - D. 35.7

Ans. A

75. Which of the following allows the water to flow in one direction only?
- A. Safety valve
 - B. Reflux valve
 - C. Foot valve
 - D. Sluice valve

Ans. B

76. A Circular shaft fixed at A has diameter D for half of its length and diameter D/2 over the other half. What is the rotation of C relative to B if the rotation of B relative to A is 0.1 radians?



- A. 0.4 radians
- B. 0.8 radians
- C. 1.6 radians
- D. 3.2 radians

Ans. C

77. In small works, concrete is transported using:
A. Conveyer belts
B. Pumps
C. Pans
D. Buckets
Ans. C
78. The sag tie in a truss is mainly used to reduce?
A. moment and deflection
B. tension
C. weight of the truss
D. compression
Ans. A
79. Number of links in 20 m metric chain is _____.
A. 80
B. 100
C. 120
D. 150
Ans. B
80. The technique of finding the fair price of an existing building or property is known as _____.
A. Estimation
B. Valuation
C. Pricing
D. Costing
Ans. B
81. Effective length of a column effectively held in position at both ends and restrained in direction at one end is
A. L
B. 0.67 L
C. 0.85 L
D. 1.5 L
Ans. C
82. A sprinkler irrigation system is suitable when
A. the land gradient is steep and the soil is easily erodible
B. the soil is having low permeability
C. the water table is low
D. the crops to be grown have deep roots
Ans. A
83. The stopping sight distance depends upon
A. Speed of vehicle
B. Total reaction time of driver
C. Efficiency of brakes
D. all of these
Ans. D
84. Reinforcement bars are spaced at 150 mm centre to centre spacing in a slab spanning 4500 mm. Calculate the number of bars in the slab.
A. 29
B. 30
C. 31
D. 32
Ans. C
85. The technique of finding the fair price of an existing building or property is known as _____.
A. Estimation
B. Valuation
C. Pricing
D. Costing
Ans. B

86. Which of the following is not a type of fish ladder?
A. Pool type
B. Steep channel type
C. Inverted filter type
D. Fish lock
- Ans. C
87. What is the weight (in kg) per meter length for 12 mm diameter steel bar?
A. 0.8
B. 0.89
C. 1.1
D. 1.4
- Ans. B
88. If Froude number is between 1.7 to 2.5, than stilling basins to be used are
A. Weir and barrages
B. Overflow spillways of dam
C. Both (A) and (B)
D. None of them
- Ans. D
89. Wake always occurs _____.
A. Before a separation point
B. After a separation point
C. Before and after a separation point
D. None of these
- Ans. B
90. If the irrigation efficiency is 80%, conveyance losses are 20% and the actual depth of the watering is 16 cm, the depth of water required at the canal outlet is _____.
A. 10 cm
B. 15 cm
C. 20 cm
D. 25 cm
- Ans. D
91. A bull nose brick is not used for _____.
A. rounding off sharp corners
B. pillars
C. decoration purpose
D. arches
- Ans. D
92. Which of the following statements is true?
A. The sum of normal stresses is constant
B. The sum of normal stresses is variable
C. The sum of normal stresses is depends on the plane
D. None of these
- Ans. A
93. An alidade is used in plane table surveying for
A. Centering
B. orientation
C. drawing lines
D. none of these
- Ans. C
94. A method that relates the planned expense and duration of tasks to the true value of what is accomplished is called
A. Earned value analysis
B. Project cost chart
C. Time cost trade -off
D. Resource scheduling
- Ans. A

- A. 1000 mm²
- B. 2000 mm²
- C. 3000 mm²
- D. 5000 mm²

Ans. A

102. A line PQ measures 12 cm on a photograph taken with a camera of focal length 22.5 cm. The same line measures 4 cm on a map drawn to scale of 1:35000. If average attitude is 300 m then what is the flying height of the aircraft?

- A. 2.925 km
- B. 2.725 km
- C. 2.7 km
- D. 2.5 km

Ans. A

103. Gauge pressure at a point is equal to

- A. absolute pressure plus atmospheric pressure
- B. absolute pressure minus atmospheric pressure
- C. vacuum pressure plus absolute pressure
- D. none of these

Ans. B

104. The process involved in chlorination after breakpoint chlorination are

- A. Dechlorination
- B. Super chlorination
- C. Post Chlorination
- D. All of these

Ans. B

105. Which of the following is the crudest form of iron?

- A. Wrought iron
- B. Cast iron
- C. Pig iron
- D. Steel

Ans. C

106. The data from a closed traverse survey PQRS are given:

Line	Include angle (in degrees)
PQ	85
QR	95
RS	97
SP	86

The closing error of the traverse PQRS is

- A. 87°
- B. 3°
- C. 93°
- D. 103°

Ans. B

107. If void ratio is 0.65 and specific gravity is 2.65 then the critical hydraulic gradient is

- A. 2
- B. 1
- C. 2.2
- D. 3.3

Ans. B

108. When the path travelled along the road surface is more than the circumferential movement of the wheels due to rotation, then it results in

- A. Slipping
- B. Skidding
- C. Turning
- D. Revolving

Ans. B

109. A propped cantilever subjected to vertical loading is indeterminate externally of?

- A. third degree
- B. fourth degree
- C. first degree
- D. second degree

Ans. C

110. For 100 sq. m cement concrete (1:2:4) 4 cm thick floor, the quantity of cement required is _____.

- A. 0.90 m³
- B. 0.94 m³
- C. 0.88 m³
- D. 1.00 m³

Ans. C

111. A circular shaft of diameter D is subjected to a torque T. The maximum shear stress of the shaft will be

- A. proportional to D³
- B. proportional to D⁴
- C. inversely proportional to D³
- D. inversely proportional to D⁴

Ans. C

112. The efficiency of sedimentation tank is

- A. Directly proportional to overflow rate.
- B. Inversely proportional to overflow rate.
- C. Directly proportional to depth.
- D. Inversely proportional to depth.

Ans. B

113. The limits of percentage of the longitudinal reinforcement in a column is:

- A. 0.15% to 2%
- B. 0.8% to 4%
- C. 0.8% to 6%
- D. 0.8% to 8%

Ans. C

114. In a free vortex, velocity

- A. Decreases with radius
- B. Increases with radius
- C. is constant
- D. Varies inversely as the square of the radius

Ans. A

115. Along the horizontal curves, if centrifugal force exceeds lateral friction, vehicles may

- A. skid
- B. slip
- C. not be affected
- D. none of these

Ans. A

116. Guide banks are provided to:
- A. Train the flow of a river along the specified course
 - B. Reduce the peak flood discharge
 - C. Confine the width of river
 - D. Increase the water way

Ans. C

117. Bulb angles are used in _____.

- A. column building
- B. bridge building
- C. ship building
- D. water tank building

Ans. C

118. Ozonation in water treatment is done for which of the process :

- A. Softening
- B. Fluoride removal
- C. Coagulation
- D. disinfection

Ans. D

119. Refractory bricks are generally used to resist _____

- A. chemical action
- B. dampness
- C. high temperature
- D. Weathering action

Ans. C

120. The correction for sag is

- A. Always additive
- B. Always subtractive
- C. Always zero
- D. Sometimes additive and sometimes subtractive

Ans. B
