JKPSC
AP

Previous Year Paper
(Structural Engg.)
17 Mar, 2024

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

Booklet Serial No. 100097

Test Booklet Series

TEST BOOKLET
AP STRUCTURAL ENGINEERING
Written Test - 2024
(42)

A

Time Allowed: Three Hours *Maximum Marks: 120*

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET ***DOES NOT*** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. **Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series Code A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer /Response Sheet. Any omission/discrepancy will render the Response Sheet liable for rejection.**
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. ***DO NOT* write *anything else*** on the Test Booklet.
4. This Test booklet contains **120** items (questions). Each item comprises of four responses (answers). You will select the response which you want to mark on the Answer Sheet/Response Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ***ONLY ONE*** response for each item.
5. You have to mark all your responses ***ONLY*** on the separate Answer /Response Sheet provided. *See directions in the Response Sheet.*
6. ***All*** items carry equal marks.
7. Before you proceed to mark in the Answer /Response Sheet, the response to various items in the Test Booklet, you have to fill in some particulars in the Answer /Response Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Response Sheet and the examination has concluded, you should hand over to the Invigilator ***only the Answer /Response Sheet***. You are permitted to take away with you the Test Booklet and ***Candidate's Copy of the Response Sheet***.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. While writing Centre, Subject and Roll No. on the top of the Answer Sheet/Response Sheet in appropriate boxes use **"ONLY BALL POINT PEN".**
11. **Penalty for wrong answers:**

    THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY THE CANDIDATE IN THE WRITTEN TEST (OBJECTIVE TYPE QUESTIONS PAPERS).

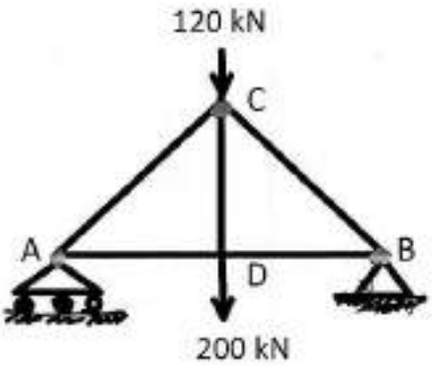
    (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **(0.25)** of the marks assigned to that question will be deducted as penalty.

    (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above for that question.

    (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

1. What is the force in the vertical member CD of the pin-jointed frame shown below?



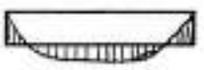
A) 120 KN (Compression)

B) 200 KN (Tension)

C) 80 KN (Compression)

D) 320 KN (Tension)

2. Match List-I(beam) with List-II (BMD) and select the correct answer using codes given below from the Lists:

List - I		List - II	
a.		1.	
b.		2.	
c.		3.	
d.		4.	

Codes

	a	b	c	d
A)	1	3	4	2
B)	2	4	1	3
C)	1	3	2	4
D)	2	4	3	1

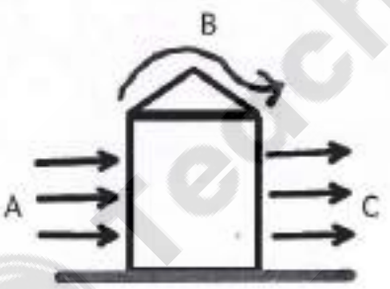
3. Match the sequence of design of concrete mix as per IS:10262: 2019 and select the correct answer using the codes given below from List-I with List- II

	List - I		**List - II**
a.	Fine and coarse aggregate contents	1.	Step 1
b.	Water cement ratio	2.	Step 2
c.	Air Content	3.	Step 3
d.	Target strength	4.	Step 4
e.	Cement content	5.	Step 5
f.	Coarse aggregate proportion	6.	Step 6
g.	Water and admixture content	7.	Step 7

Codes

	a	b	c	d	e	f	g
A)	1	2	3	4	5	6	7
B)	2	4	3	5	7	1	6
C)	7	2	3	1	5	6	4
D)	7	2	1	5	7	6	3

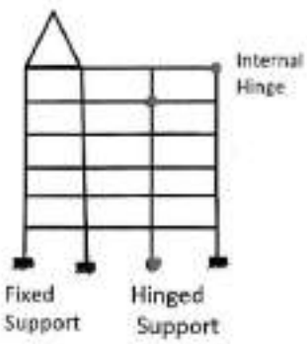
4. Suction pressure due to wind load over a building shown in elevation is



A) A
B) B
C) C
D) B and C

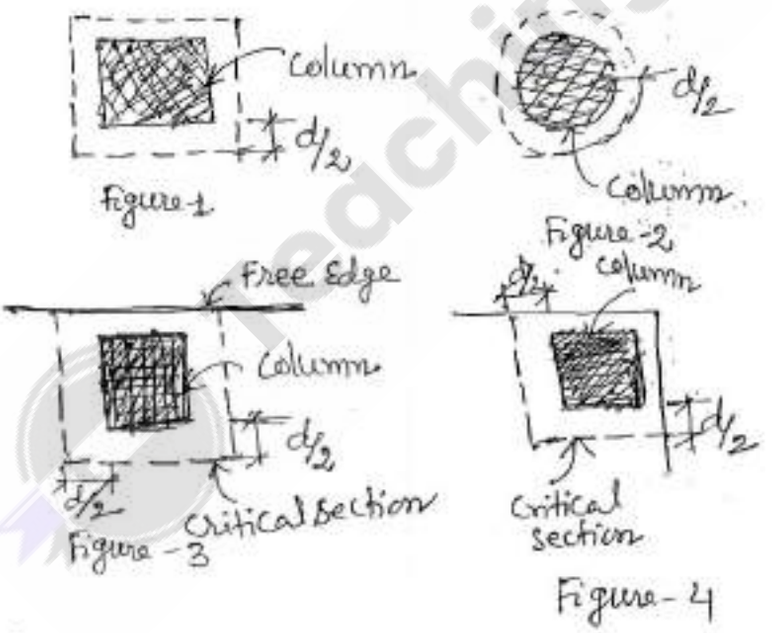
5. Example of Institutional Building as defined in IS:875 part 1 -1987 is
A) College building
B) Theateres
C) Court room
D) Prisons

6. The total (external + internal) degree of static indeterminacy of the plane frame shown in the given figure is



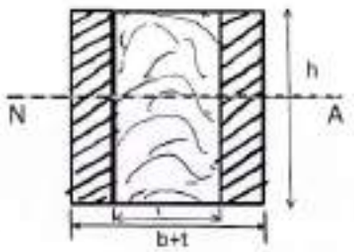
A) 52
B) 57
C) 54
D) 51

7. Which one is the correct representation of a critical section in a two way shear in a plan of a raft foundations shown in figure 1 to figure 4



A) Figure 1 and 3
B) Figure 2
C) Figure 1 and 2
D) Figure 1, 2, 3 and 4

8. The figure below shows the cross-section of composite beam of timber and steel. The moment of inertia about neutral axis as timber equivalent beam is



CROSS-SECTION

A) $(b + t)\, h^3/12$

B) $bh^3/12$

C) $mbh^3/12 + th^3/12$

D) $bh^{3/12} + th^3/12m$

9. Modulus of elasticity of high yield strength steel and thermos mechanical treated steel is about

A) 1.25

B) 2.25

C) 0.75

D) 1.00

10. Consider the following statements:

Assertation (A): In two-dimensional stress problem two stress system consists of two principal stresses σ_1 and σ_2 and plane strain problems $\varepsilon_1 = \sigma_1/E$ and $\varepsilon_1 = \sigma_2/E$. Both the problems are similar.

Reason (R) : Stress is proportional to strain.

Of these statements

A) Both A and R are true and R is the correct explanation of A

B) Both A and R are true but R is not a correct explanation of A

C) A is true but R are false

D) A is false but R is true

11. No twist of a section is caused by the transverse load if the load passes through

A) Shear centre of the section

B) Centroidal axis of the section

C) Neutral axis of section

D) C.G. of the section

12. The shear force on a beam section and the displacement are related by

A) $V = EI\frac{d^2y}{dx^4}$

B) $V = EI\frac{d^3y}{d^3x}$

C) $V = EI\frac{d^4y}{dx^4}$

D) None of the above

13. Example of grid structure is

A) Coffer slab

B) Flat slab

C) Space frame

D) Geodesic dome

14. The design of a structure on the basis of the lower bound theorem in plastic analysis is on the

A) Upper bound side

B) Unsafe side

C) Safer side

D) None of the above

15. Golden Gate bridge in San Francisco is

A) Cable stayed structure

B) Trussed structure

C) Cable suspended structure

D) Arched structure

16. Minimum pitch of 16 mm diameter bolt is

A) 32 mm

B) 40 mm

C) 50 mm

D) 60 mm

17. The maximum total settlement for isolated foundation should be limited to

A) 25 mm in clay soil and 65 mm in sandy soil

B) 40 mm in sandy soil and 65 mm in clay soil

C) 100 mm in sandy soil and 60 mm in clay soil

D) 75 mm in both sandy and clay soil

18. The nominal thickness of standard one brick (unplastered) wall is

A) 100 mm

B) 200 mm

C) 230 mm

D) 250 mm

19. The point at which a specimen elongates in tension test considerably without increasing the load is

A) Permanent set

B) Yield point

C) Ultimate stress

D) Final point

20. The relationship between Bulk modulus (K), Elasticity Modulus (E) and Poisson's ratio (μ) is

A) $K + 2E(1 - 2\mu)$

B) $K = 3E(1 - 2\mu)$

C) $E = 2K(1 + \mu)$

D) $E = 3K(1 - 2\mu)$

21. Rock having clay as their major constituent are known as

A) Argillaceous rocks

B) Calcareous rocks

C) Sedimentary rocks

D) Siliceous rocks

22. Rat-trap bond developed by Laurie Baker (British born Indian architect) is similar to

A) English bond

B) Stretcher bond

C) Flemish bond

D) Raking bond

23. In case of a load bearing wall constructed using Portland cement or Portland pozzolana cement, slenderness ratio shall not exceed

A) 13

B) 20

C) 27

D) 35

24. The shell roof suitable for industrial roofing is

A) East light type

B) West light type

C) North light type

D) South light type

25. Timber solid column is said to be intermediate if slenderness ratio is

K_s = constant equal to $0.584\sqrt{\frac{E}{f_{cp}}}$

Where

E= Modulus of Elasticity

f_{cp} = Compressive stress parallel grain

A) Between 11 and $\mathbf{K_s}$

B) Greater than $\mathbf{K_s}$

C) Less than $\mathbf{K_s}$

D) Equal to $\mathbf{K_s}$

26. The minimum ratio of span to deflection in wooden cantilever beam is

A) 150

B) 180

C) 360

D) 400

27. A masonry shear wall is designed to resist

A) Shear force only

B) Shear force and bending moment

C) Axial force and shear force

D) Axial force, shear force and bending moment

28. Permissible compressible stress depends upon

A) Area reduction factor and slenderness ratio

B) Area reduction factor, shape modification factor and eccentricity of loading

C) Area reduction factor, shape modification factor and stress reduction factor

D) Slenderness ratio, eccentricity of loading and height to width ratio of units

29. The permissible compressible stress in burnt clay brick masonry is about ———— of the compressive strength of unit

A) One third or less

B) One sixth or less

C) One eight or less

D) One fifteenth or less

30. M20 nominal mix design as per IS456:2000 will be processed by adopting water cement ratio of

A) 0.50

B) 0.60

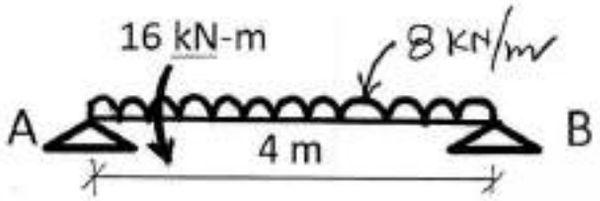
C) 0.64

D) 0.70

31. Concrete in the member represented by a core test shall be considered acceptable if the average equivalent cube strength is equal to or greater than

A) 0.75
B) 0.80
C) 0.85
D) 1.00

32. A simply supported beam of span 4 m is subjected to uniformly distributed load of 8 kN/m over entire span and a moment of 16 kN-m near support A as shown in figure. The bending moment at centre of span is



A) 8 kN-m (hogging)
B) 8 kN-m (sagging)
C) 12 kN-m (hogging)
D) 12 kN-m (sagging)

33. In a simply supported beam of span l carrying a uniformly varying load from zero at right support to w kN/m at left. The maximum design bending moment for the beam is

A) $wl^2 / 12$
B) $4wl^2 / 125$
C) $wl^2 / 9\sqrt{3}$
D) $2wl^2 / 125$

34. When a rectangular beam is loaded longitudinally, shear develops on?

A) Bottom fibre only
B) Top fibre only
C) Vertical planes only
D) Every horizontal plane

35. A beam is said to be under pure bending if

A) All fibres experience uniform stress
B) Nature of stress in all fibres is same
C) The stress intensity in any fibre is directly proportional to the distance of the fibre from the neutral axis
D) None of the above

36. Euler's formula is not valid for mild steel column when slenderness ratio is
    A) More than 80
    B) Less than 80
    C) More than 120
    D) More than 40

37. Condition for not to develop tension in the rectangular column, eccentricity should not be more than
    A) b/6
    B) b/8
    C) d/4
    D) d/3

38. The strain energy stored in a member when strained within limit is known as
    A) Resilience
    B) Modulus of resilience
    C) Both A and B
    D) None of the above

39. The angle of twist in shaft subjected to torsion is analogous to deflection in a beam under transverse forces can be considered as
    A) Strength of the shaft
    B) Stiffness of the shaft
    C) Elasticity of the shaft
    D) None of the above

40. Theoretical or linear arch is
    A) Line of action
    B) Centreline
    C) Line of horizontal reaction
    D) Line of thrust

41. Rankine's formula is valid for
    A) Short column
    B) Long column
    C) Intermediate column
    D) Short and long column

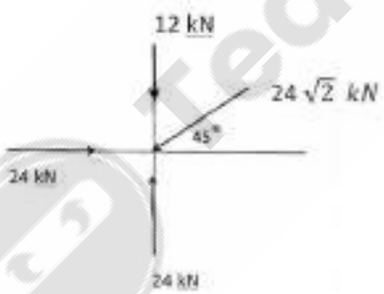
42. Force is a
A) Scaler quantity
B) Vector quantity
C) Linear quantity
D) None of the above

43. The moment of inertia of a triangular section of base b and height h about base parallel to centroidal axis is
A) $bh^3/12$
B) $bh^3/36$
C) $bh^3/6$
D) $hb^3/12$

44. Static friction is
A) Greater than dynamic friction
B) Less than dynamic friction
C) Equal to dynamic friction
D) None of the above

45. Free body diagram is the whole structure or part of the structure shown with
A) All internal forces acting on it
B) All actions
C) All actions and reactions acting on it
D) None of the above

46. The resultant of the coplanar concurrent force system shown in figure is



A) 24 kN acting downwards
B) Zero
C) 20 kN acting horizontally from left to right
D) 24 kN acting upwards

47. For determining forces in the members of a truss by the method of substitution will be required if it is
A) Pratt type truss
B) Warren truss
C) Howe truss
D) Fink truss

48. Force in member of simple determinate pin jointed truss can be determined by

A) Method of joints

B) Method of sections

C) Graphical solutions

D) All of the above

49. Effect of force on the body depends upon

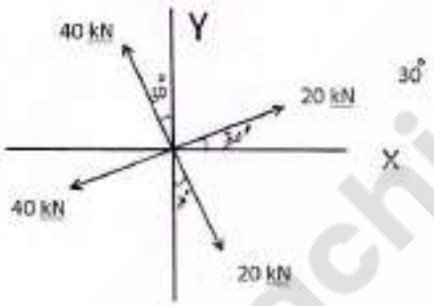
A) Direction

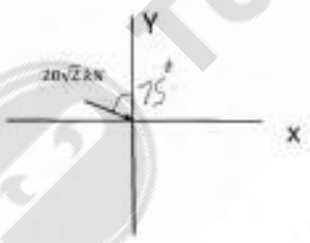
B) Magnitude

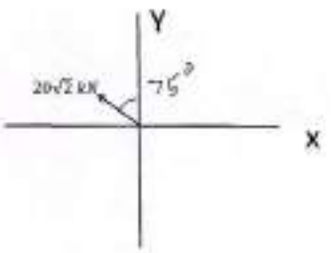
C) Positions

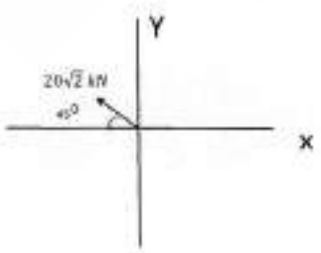
D) All of the above

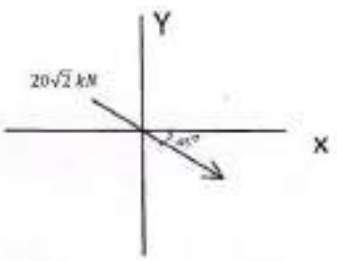
50. Four coplanar concurrent forces are acting at a point as shown in figure. The equilibrant of this force system is



A) 

B) 

C) 

D) 

51. Match the sequence and select the correct answer using the codes given below from List-I with List- II

	List - I		List - II
a.	Arch in pure compression	1.	Equilibrium of concurrent forces
b.	Centre of Gravity	2.	Catenary
c.	Cable under U.D.L	3.	Shape reverse of catenary
d.	Truss Analysis	4.	Parallel Forces

	a	b	c	d
A)	3	4	2	1
B)	2	1	3	4
C)	4	2	3	1
D)	1	3	4	2

52. Which of the following is cohesive soil?
A) Kankar
B) Black cotton soil
C) Loose coarse sand
D) Sand with clay

53. The minimum size of grains of silt soil is
A) 0.01
B) 0.006
C) 0.004
D) 0.002

54. The ratio of weight of water to the weight of solids of soil is called
A) Void ratio
B) Porosity
C) Specific gravity
D) Water content

55. The specific gravity of sandy soil is
A) 2.2
B) 2.6
C) 3.6
D) 1.6

56. The shear strength of a soil

A) is proportional to the cohesion of the soil

B) is proportional to the tangent of the angle of internal friction

C) increase with the increase in normal stress of soil

D) All of the above

57. The net bearing capacity of soil is

A) Safe bearing capacity soil

B) Safe bearing capacity minus pressure due to self-weight of foundation and backfill

C) Ultimate bearing capacity divided by factor of safety

D) None of the above

58. The angle of internal friction for cohesive soils is

A) Zero

B) 30°

C) 45°

D) 10°

59. Floating foundation is a type of

A) Well foundation

B) Pile foundation

C) Raft foundation

D) Grillage foundation

60. Pile foundations are mostly used

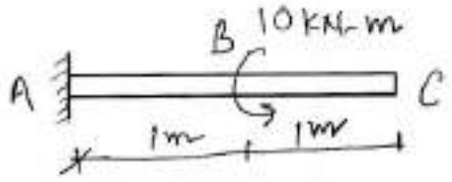
A) In soft clayey soils

B) Marshy land

C) When required bearing area is not available

D) All of the above

61. A circular shaft of diameter 50mm having shear modulus of 100 GPa is subjected to a torsional moment of 10kN-m at mid span B As shown in figure. What is the angle of twist at C

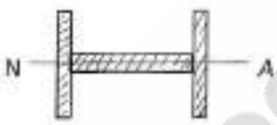


A) Same as that of B
B) Zero
C) Double as that of B
D) Half as that of B

62. Two shafts, one of hollow section and other is solid section made of same material and same cross-sectional area and of same length are subjected to same torsional moment. Shear stress developed in hollow section will be

A) Equal to that of solid section
B) More than that of solid section
C) Less than that of solid section
D) None of the above

63. Which one of the following diagrams indicates the shear distribution for the beam cross section shown in the figure below



A) 

B) 

C) 

D) 

64. The study of forces and the displacement of bodies, geometry of the motion without addressing the cause of movement is known as

A) Kinetics

B) Kinematics

C) Solid mechanics

D) Statics

65. A 3 meter long cantilever beam is to carry a full span uniformly distributed load. If M.R capacity of the beam is 180 kN-m. The maximum uniformly distributed load inclusive of self weight of beam will be

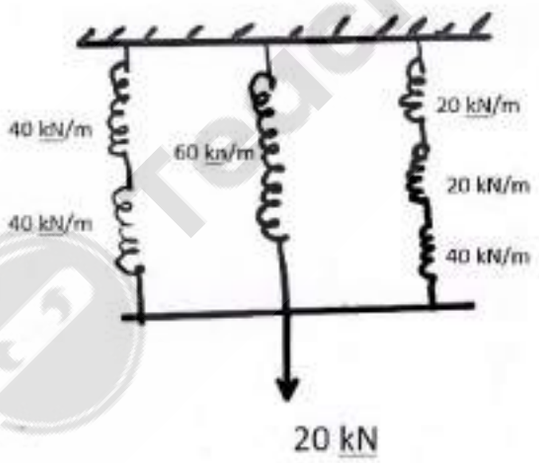
A) 18 kN/m

B) 20 kN/m

C) 40 kN/m

D) 60 kN/m

66. What is the equivalent stiffness of the system for the system of springs shown in the figure



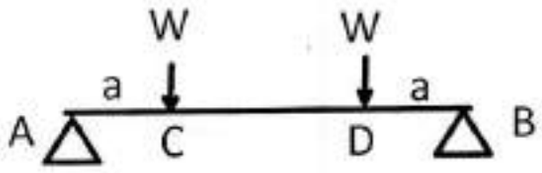
A) 88

B) 140

C) 220

D) 120

67. Consider two point load test as a simply supported steel beam AB as shown in figure below



The portion CD of the beam is under

A) Pure shear
B) Pure bending
C) Having maximum shear force
D) None of the above

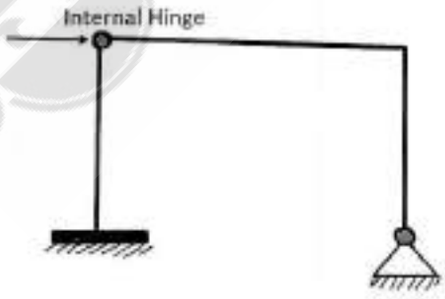
68. The Muller- Breslau Principle in structural analysis is used for

A) Drawing deflected shape for any stress function for getting influence line diagram
B) Considering free body diagram and superimposed loads
C) For proving principle of virtual work done
D) None of the above

69. Absolute stiffness of the beam if farther end is fixed is

A) 3EI/L
B) 4EI/L
C) I/L
D) 3EI/4L

70. The kinematic indeterminacy of the portal frame shown in figure is



A) 6
B) 8
C) 12
D) 14

71. Choose correct statement

A) Fine sand bulks more than coarse sand

B) Maximum permissible starin is the design criteria in limit state method

C) Ultimate strength may be achieved by steam curing in 3 days

D) All of the above

72. For producing M15 grade nominal mix concrete as per IS 456 – 2000 amount of total fine and coarse aggregate is

A) 250

B) 270

C) 330

D) 480

73. The power of a telescope to form clear and distinct images of objective separated by smaller angular distance is known as

A) Sensitivity

B) Aperture

C) Resolving power

D) Magnifying power

74. Steel structure is better in resisting impact loads because they have high

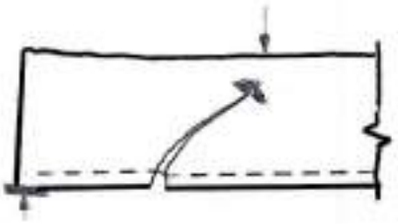
A) Toughness value

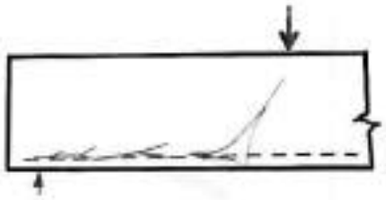
B) Elastic modulus

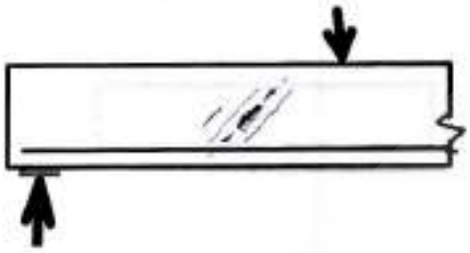
C) Plastic modulus

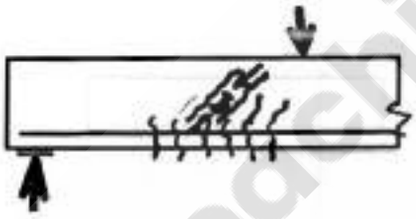
D) Modulus of rigidity

75. Choose the correct option of shear tension failure from figure shown below

A) 

B) 

C) 

D) 

76. Cube of size 150 mm × 150 mm × 150 mm and cylinder of diameter 150 mm and height 300 mm was tested at the age of 28 days.

Choose the correct statement

A) Cube strength was about 25 % higher than cylindrical strength

B) Cylindrical strength is actual strength of concrete

C) Cube strength was governed by platten effect

D) All of the above

77. Core test is conducted on prototype structure to determine

A) Equivalent cube Strength of concrete in structure

B) Approximate ratio test of ingredients

C) Petrographic examination

D) All of the above

78. Half cell potential measurement are done for

A) Corrossion of rebar

B) Carbonation of concrete

C) Permeability of concrete

D) None of the above

79. **Statement 1**: Higher velocity is obtained in ultra pulse velocity test if concrete is dense, uniformly compacted and concrete is homogenious.

Statement 2: Lower velocity is obtained when concrete is poorly compacted and discontinuity in the path due to cracks.

Choose the correct statement

A) Statement 1 is correct

B) Statement 2 is correct

C) Statement 1 and 2 both are correct

D) None of the above

80. **Statement 1:** In impressed current cathodic protection; steel Act as cathode and other conductive material becomes anode.

Statement 2: Steel will remain in passive against corrossion if concrete PH is below 10.

Choose the correct statement

A) Statement 1 is correct

B) Statement 2 is correct

C) Statement 1 and 2 both are correct

D) None of the above

81. Which of the following fiber has higher tension modulus?

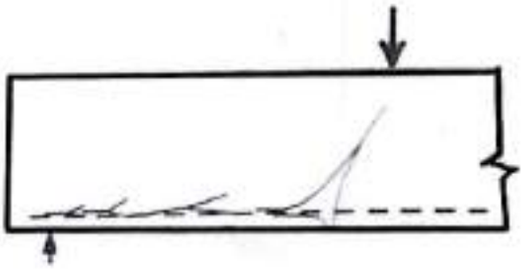
A) Carbon

B) Aramid

C) Glass

D) Boron

82. Identify the correct mode of shear failure



A) Shear compression failure

B) Shear tension failure

C) Diagonal tension failure

D) Web crushing failure

83. Cracks in brick masonry in-filled frame due to seismic loads will appear as

A) Diagonal cracks

B) Vertical cracks

C) Horizontal cracks

D) None of the above

84. Shear wall are basically designed to provide

A) Moment resistance capacity

B) Axial resistance capacity

C) Shear resistance capacity

D) None of the above

85. Shear failure in R.C.C. shear frame structure will occur in frame designed and detailed as per IS: 456-2000 when subjected to severe earthquake at

A) Centre of beam

B) Mid height of column

C) Beam column joints

D) Both A and B

86. Retrofitting of structure

A) Increase stiffness

B) Increase ductility

C) Increase both stiffness and ductility

D) Decrease ductility and increase stiffness

87. Flexure and shear strengthening of R.C.C beam are carried out

A) Tension face of the beam

B) Comression face of the beam

C) Side plates along the depth of beam

D) Column beam slab junction

88. Web Stiffener in plate girder may

A) Increase moment resistance capacity

B) Increase resistance against out of plane deformation

C) Increase shear resistance

D) None of the above

89. Inadequate curing of concrete may lead to

A) Cracks

B) Voids

C) Decrease in strength

D) All of the above

90. Corrossion in steel due to ingress of chloride

A) Is more dangerous

B) May cause localised failure

C) May not show sign of spalling of concrete

D) All of the above

91. **Statement 1:** Alkali aggregate reaction will depends upon water is available in cement paste.

Statement 2: To reduce alkali aggregate reaction lime may be added to concrete mix.

Choose the correct statement

A) Statement 1 is false

B) Statement 2 is correct

C) Statement 1 and 2 is correct

D) Statement 1 is correct

92. The maximum slenderness ratio of lacing bar as per IS:800-2007 is

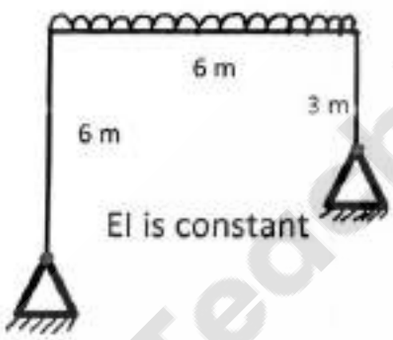
A) 135

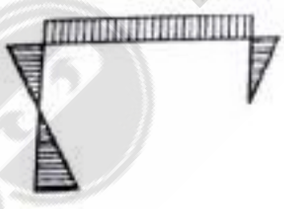
B) 145

C) 150

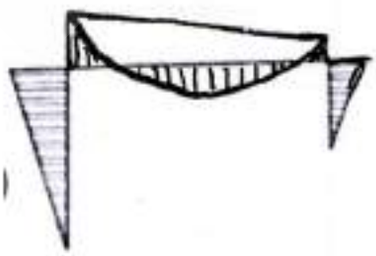
D) 165

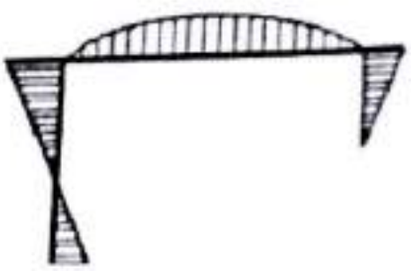
93. Qualitative bending moment diagram on tension side for the portal frame shown in the figure will be



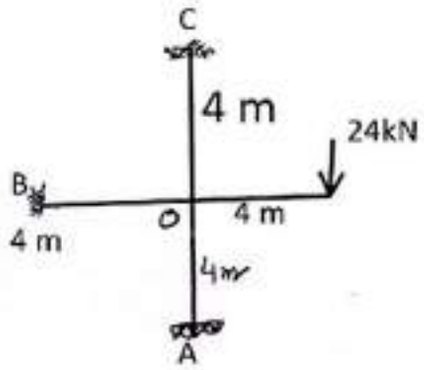
A) 

B) 

C) 

D) 

94. A frame loaded as shown in figure. The final end moment develop at support A due to fixity is



A) 96 kNm

B) 48 kNm

C) 24 kNm

D) 16 kNm

95. Standard grade concrete is

A) M20 - M40

B) M20 - M55

C) M25 - M45

D) M25 – M60

96. Factors not affecting durability of concrete structures is

A) Shape and size of member

B) Cement content

C) Cover to embedded reinforcement

D) Type of reinforcement

97. Neutral axis factor for Fe 500 grade steel in limit state method of design is

A) 0.25

B) 0.48

C) 0.46

D) 0.40

98. The ratio of depth of web to width of flange of ordinary steel rolled beam section is approximately

A) 1 to 1.4

B) 1.3 to 1.55

C) 1.65 to 2

D) 2 to 3

99. Partial safety factor for field fabricated weld is

A) 1.10

B) 1.15

C) 1.25

D) 1.50

100. Which factor is denoted by K_4 in the design calculation of wind speed from basic wind velocity

A) Probability factor

B) Importance factor

C) Topography factor

D) Terrian roughness and height factor

101. Choose the correct type of material used in viscous damper for dissipating energy due to seismic forces on the structure

A) Silicon based

B) Copper based

C) Petroleum based

D) None of the above

102. What is the approximate increase in structural cost of the building if it is designed as ductile structure to perform better during earthquake

A) 5 to 10 %

B) 10 to 15 %

C) 15 to 20 %

D) 20 to 25 %

103. Foundation of buildings of Venice city in Italy which was constructed back in 421 AD is

A) Raft foundation

B) Grillage foundation

C) Pile foundation

D) Inverted arch foundation

104. Sandstone is a type of

A) Igneous rock

B) Sedimentary rock

C) Metamorphic rock

D) None of the above

105. The fineness of cement is obtained by

A) Le Chateliers apparatus

B) Specific surface – air permeability method

C) Vicat needle

D) Normal consistency apparatus

106. Lime putty is

A) Paste of slacked lime

B) Paste of fat lime

C) Paste of lime and flyash

D) Paste of white cement

107. Gypsum is a

A) Stable material

B) Metastable material

C) Slow setting material

D) None of the above

108. Ordinary glass can resist temperature upto

A) 100°C

B) 200°C

C) 400°C

D) 800°C

109. Standard accepted basic module **M** is

A) 100 mm

B) 125 mm

C) 150 mm

D) 200 mm

110. Principle of modular coordinate are

A) Basic module, modular dimension, planning module

B) Placing of components, modular grid

C) Preferred dimensions, tolerances

D) All of the above

111. Millennium dome of Thames England is a

A) Dome structure

B) Membrane structure

C) Geodesic dome

D) None of the above

112. Approximate loss of prestress due to creep in steel is

A) Upto 5 %

B) Upto 8 %

C) Upto to 12%

D) Upto 16%

113. The total loss of prestressed pretensioned concrete

A) About 20%

B) 15%

C) 10%

D) 0 %

114. High strength steel and high grade concrete is used in prestressed concrete is

A) To compensate losses due to prestressing

B) To obtain high durability

C) To reduce requirement of steel and concrete

D) None of the above

115. Prestressed electric poles are pretensioned with

A) Circular prestressing

B) Eccentric prestressing

C) Axial prestressing

D) None of the above

116. The magnitude of prestressing force is measured during prestressing process is

A) Pressure gauge

B) Extension of wire

C) Both A and B

D) None of the above

117. **Statement 1:** Passive earth pressure is much more higher than active earth Pressure

Statement 2: By increasing angle of friction of back fill lateral earth pressure also Increases

Choose the correct statement

A) Statement 1 is true

B) Statement 2 is correct explanation of statement 1

C) Both statements are true

D) Statement 1 is false

118. Buttress type retaining wall with compare to counterfort type of retaining wall is

A) Less efficient

B) More efficient

C) Aesthetic looking better

D) None of the above

119. Factor which are influencing fire resistance rating of reinforced concrete

A) Grade of concrete, type of aggregate and member size

B) Type of steel and cover to concrete

C) Continuities and degree of indeterminacy of structure

D) All of the above

120. Ductility in seismic design can measured quantitatively by

A) Curvature at a particular section

B) Rotation at selected joint

C) Displacement of selected joint

D) All of the above

ROUGH WORK

Provisional Answer Key

Assistant Professor (Structural Engineering)

Test Booklet Question No. (Series A)	
Q1	B
Q2	B
Q3	C
Q4	D
Q5	D
Q6	A
Q7	D
Q8	C
Q9	D
Q10	D
Q11	A
Q12	D
Q13	A
Q14	C
Q15	C
Q16	B
Q17	B
Q18	B
Q19	B
Q20	D
Q21	A
Q22	C
Q23	C
Q24	C
Q25	A
Q26	A
Q27	D
Q28	C
Q29	C
Q30	B
Q31	C
Q32	B
Q33	C
Q34	D
Q35	C
Q36	B
Q37	A
Q38	A
Q39	A
Q40	D

Test Booklet Question No. (Series A)	
Q41	D
Q42	B
Q43	A
Q44	A
Q45	C
Q46	B
Q47	D
Q48	D
Q49	D
Q50	A
Q51	A
Q52	B
Q53	D
Q54	D
Q55	B
Q56	C
Q57	B
Q58	A
Q59	C
Q60	D
Q61	A
Q62	C
Q63	B
Q64	B
Q65	C
Q66	A
Q67	B
Q68	A
Q69	B
Q70	B
Q71	D
Q72	C
Q73	C
Q74	A
Q75	B
Q76	D
Q77	D
Q78	A
Q79	C
Q80	A

Test Booklet Question No. (Series A)	
Q81	A
Q82	B
Q83	A
Q84	A
Q85	C
Q86	C
Q87	C
Q88	B
Q89	D
Q90	D
Q91	D
Q92	B
Q93	C
Q94	D
Q95	D
Q96	D
Q97	C
Q98	C
Q99	D
Q100	B
Q101	A
Q102	A
Q103	C
Q104	B
Q105	B
Q106	A
Q107	B
Q108	B
Q109	A
Q110	D
Q111	B
Q112	A
Q113	A
Q114	A
Q115	C
Q116	C
Q117	A
Q118	B
Q119	D
Q120	D