

WORKSHOP AND CALCULATION

Q. ID: ITISKILL0710WV

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Answer Key

Duration: 30 Mins

Total Marks: 98

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1. What is the ratio of shear stress to shear strain?

- A) Modulus of rigidity B) Modulus of elasticity
C) Bulk modulus D) Yield point

Answer: A) Modulus of rigidity

2. What is the purpose of tempering a steel?

- A) To reduce the brittleness B) To remove the ductility
C) To increase the hardness D) To increase the brittleness

Answer: A) To reduce the brittleness

3. What is the centre of gravity of a right circular cone from its base?

- A) $h/4$ B) $h/5$
C) $h/3$ D) $h/2$

Answer: A) $h/4$

4. What is the tensile stress if a square rod of 10 mm side is tested for a tensile load of 1000 kg?

- A) 10 kg/mm^2 B) 100 kg/mm^2
C) 1 kg/mm^2 D) 1000 kg/mm^2

Answer: A) 10 kg/mm^2

5. What is the ratio between stress and strain?

- A) Young's Modulus B) Yield point
C) Poisson's ratio D) Factor of safety

Answer: A) Young's Modulus

6. Which one is the most reliable estimate?

- A) Plinth area estimate B) Cube rate estimate
C) Detailed estimate D) Preliminary estimate

Answer: C) Detailed estimate

7. Which affects the centre of gravity of the object?

- A) Mass B) Density
C) Shape D) Weight

Answer: A) Mass

8. What is the ratio between ultimate stress to working stress?

- A) Bulk modulus B) Modulus of rigidity
C) Factor of safety D) Young's modulus

Answer: C) Factor of safety

9. Which process steel is heated in a carbonaceous atmosphere for the penetration of carbon?

- A) Induction hardening B) Nitriding
C) Carburising D) Case hardening

Answer: C) Carburising

10. Which one of the following geometrical shapes centre of gravity lies from its base is $1/3$ of its height?

- A) Rhombus B) Triangle
C) Square D) Cone

Answer: B) Triangle

11. What is the minimum permissible area of conductor (U/G cable) for three and half cores cable?

- A) 25 sq.mm B) 50 sq.mm
C) 5 sq.mm D) 100 sq.mm

Answer: B) 50 sq.mm

12. What is the total construction cost of a house construction area of 3000 sq.ft. (cost of construction Rs.2000/- per sq.ft including material and labour)?

- A) Rs.30,000,000 B) Rs.60,00,000
C) Rs.6,000,000 D) Rs.6,00,000

Answer: B) Rs.60,00,000

13. What is the ratio of ultimate load to area of original cross section?

- A) Yield point B) Young's modulus
C) Ultimate stress D) Factor of safety

Answer: C) Ultimate stress

14. What is the centre of gravity of a rectangular body?

- A) Longer side of rectangle B) Shorter side of rectangle
C) At the corners D) At the point of intersection of its diagonals

Answer: D) At the point of intersection of its diagonals

15. What is the total wattage in a room if 2 tube lights of 50W rating, 2 fans of 80W rating, 2 numbers of light points of 60W rating, one fan point of 60W rating and one 3 pin socket of 100W rating?

- A) 540 W B) 640 W
C) 440 W D) 340 W

Answer: A) 540 W

16. Where the centre of gravity of a circle lies?

- A) Any where on its diameter B) Any where on its circumference
C) Any where on its radius D) At its centre

Answer: D) At its centre

17. What is a under estimate?

- A) An estimate is fell short of the actual estimate B) An estimate is exceeded the actual estimate
C) An estimate perfectly matches with actual D) No work started as per estimate

Answer: A) An estimate is fell short of the actual estimate

18. Which authority publishes schedule of rates?

- A) Government department B) Partnership firm
C) Individual D) Corporate

Answer: A) Government department

19. Which force acts on crank shaft?

- A) Torsional stress B) Tensile stress
C) Compressive stress D) Shear stress

Answer: A) Torsional stress

20. How much strain is developed in an iron rod of 1 metre length gets elongated by 1 cm, if a force of 100 kg is applied at one end?

- A) 0.1 B) 0.0001
C) 0.001 D) 0.01

Answer: D) 0.01

21. What is the unit of strain?

- A) No unit B) Metre
C) Newton/metre² D) Kg/cm²

Answer: A) No unit

22. What is the centre of gravity of a sphere?

- A) At the centre B) On the circumference
C) At the radius D) At the diameter

Answer: A) At the centre

23. Which specification is other than general specification?

- A) Brief specification B) Main specification
C) Detailed specification D) Bulk specification

Answer: C) Detailed specification

24. Which one of the following geometrical shape's centre of gravity lies from its base is 1/3 of its height?

- A) Cone B) Triangle
C) Rhombus D) Square

Answer: B) Triangle

25. What is the centre of gravity of a semi circle of diameter 12 cm?

- A) 2.75 cm B) 3.25 cm
C) 2.54 cm D) 2.24 cm

Answer: C) 2.54 cm

26. What is the name of the heat treatment process, where the metal is heated and quenched in water or oil?

- A) Hardening B) Tempering
C) Annealing D) Normalising and Tempering

Answer: A) Hardening

27. Which law states that within elastic limit stress is directly proportional to strain?

- A) Hooks law B) Newtons law
C) Charles law D) Joules law

Answer: A) Hooks law

28. What is an over estimate?

- A) When an estimate is exceeded to actual estimate B) No work started as per estimate
C) When an estimate is fell short of the actual estimate D) When an estimate perfectly matches the actual estimate

Answer: A) When an estimate is exceeded to actual estimate

29. What percentage of water absorbed by a good building stone?

- A) Less than 20% B) Less than 5%
C) Less than 8% D) Less than 10%

Answer: B) Less than 5%

30. Which is thermosetting plastic?

- A) Polystyrenes B) Melamine resins
C) Vinyl polymers D) Celluloid

Answer: B) Melamine resins

31. Which state of equilibrium's example is, A cone resting on its base?

- A) Stable B) Un-stable
C) Bothe A and B D) Neutral

Answer: A) Stable

32. What is the centre of gravity of a right circular cone from its base?

- A) h/5 B) h/4
C) h/3 D) h/2

Answer: B) h/4

33. What is colour of a metal piece when heated to 250 Degree C while doing the tempering process?

- A) Pale
- B) Brown
- C) Purple
- D) Blue

Answer: B) Brown

34. Which is a kind of surface hardening process?

- A) Nitriding
- B) Cementite
- C) Ferrite
- D) Tempering

Answer: A) Nitriding

35. Which is thermo plastic material?

- A) Nylon
- B) Vinyl polymers
- C) Butyl rubber
- D) Neoprene

Answer: B) Vinyl polymers

36. What is the term, for the details of materials, brand name, grade of quality, rating of current and voltage etc.?

- A) Specification of materials
- B) Raw materials
- C) Drawing
- D) Price catalogue

Answer: A) Specification of materials

37. What is the total cost of Air-conditioners installed in a college, 40 class room-each 1 Air-conditioner, Computer lab 5 Air- conditioners and conference hall 5 Air-conditioners (Cost of one air conditioner Rs.30000/- including installation)?

- A) Rs. 20 lakhs
- B) Rs.10 lakhs
- C) Rs. 12 lakhs
- D) Rs. 15 lakhs

Answer: D) Rs. 15 lakhs

38. What are the various types of heat treatment processes?

- A) Tempering, Cooling, Packing and Solling
- B) Normalising, Heating, Cooling and Painting
- C) Hardening, Soaking, Painting and Packing
- D) Annealing, Normalising, Hardening and Tempering

Answer: D) Annealing, Normalising, Hardening and Tempering

39. What is the name of the point at which all the weight of the body concentrated?

- A) Initial point
- B) Centre of gravity
- C) Centroid
- D) Central point

Answer: B) Centre of gravity

40. Which state of equilibrium's example is, A cone resting on its base?

- A) Bothe A and B
- B) Neutral
- C) Un-stable
- D) Stable

Answer: D) Stable

41. What is the centre of gravity of a solid hemisphere from its base?

- A) $r/2$
- B) $3r/8$
- C) $4r/5$
- D) $3r/4$

Answer: B) $3r/8$

42. What cables are used for 132KV lines?

- A) Extra super voltage
- B) Extra high tension
- C) High tension
- D) Super tension

Answer: A) Extra super voltage

43. How much time is allowed normally in soaking zone for a 10mm thick metal piece while hardening?

- A) 20 minutes
- B) 15 minutes
- C) 5 minutes
- D) 10 minutes

Answer: C) 5 minutes

44. Which is the suitable nitriding process for all alloyed and unalloyed steels?

- A) Gas nitriding
- B) Nitriding in Quenching tank
- C) Silver nitriding
- D) Nitriding in salt-bath

Answer: D) Nitriding in salt-bath

45. What is the minimum permissible size of aluminium wire used in estimation?

- A) 1.5 sq.mm
- B) 3.5 sq.mm
- C) 5 sq.mm
- D) 2.5 sq.mm

Answer: A) 1.5 sq.mm

46. Which state of equilibrium's example is A cone resting on its tip?

- A) Stable
- B) Neutral
- C) Horizontal
- D) Unstable

Answer: D) Unstable

47. What is the process of heat treatment?

- A) The process of cooling to measure the dimensions
- B) The process of heating and bending as per our requirement
- C) The process of heating and cooling to change the structure and properties
- D) The process of heating to change the dimensions

Answer: C) The process of heating and cooling to change the structure and properties

48. Which one is the ratio of stress?

- A) Load and diameter
- B) Load and time
- C) Load and area
- D) Load and direction

Answer: C) Load and area

49. What are the various stages of heat treatment?

- A) Soaking, Quenching and Cooling
- B) Quenching, Cooling and Heating

- C) Heating, Cooling and Quenching D) Heating, Soaking and Quenching

Answer: D) Heating, Soaking and Quenching

50. Which one is included in machining estimation sheet?

- A) Tax B) Raw material cost
C) Advertisement cost D) Transport cost

Answer: B) Raw material cost

51. Where the centre of gravity of a circle lies?

- A) Any where on its radius B) Any where on its circumference
C) At its centre D) Any where on its diameter

Answer: C) At its centre

52. What is the name of a booklet, the rates of various terms are indicated?

- A) Price bank B) Price bunch
C) Price catalogue D) Price tag

Answer: C) Price catalogue

53. Which force acts on rivets?

- A) Tensile force B) Compressive force
C) Bending force D) Shear force

Answer: D) Shear force

54. Which heat treatment process is done to refine the grain structure of the steel?

- A) Annealing B) Normalising
C) Hardening D) Tempering

Answer: B) Normalising

55. What is the ratio between the change in dimension to its original dimension of the substance?

- A) Stress B) Poisson's ratio
C) Factor of safety D) Strain

Answer: D) Strain

56. What is a total cost?

- A) Raw materials cost and machining cost B) Advertisement cost only
C) Machining cost only D) Raw material cost only

Answer: A) Raw materials cost and machining cost

57. What is the other term of pocket reference in engineering works?

- A) Good book B) Hand tool
C) Hand book D) New book

Answer: C) Hand book

58. What is the relative permittivity of rubber?

- A) Between 2 and 3 B) Between 12 and 14
C) Between 8 and 10 D) Between 5 and 6

Answer: A) Between 2 and 3

59. What is the centre of gravity of a solid hemisphere from its base?

- A) $3r/4$ B) $4r/5$
C) $3r/8$ D) $r/2$

Answer: C) $3r/8$

60. What is the formula for bulk modulus?

- A) Volumetric stress/Volumetric strain B) Tensile stress/Tensile strain
C) Compressive stress/Compressive strain D) Shear stress/Shear strain

Answer: A) Volumetric stress/Volumetric strain

61. What is the name of the point at which all the weight of the body concentrated?

- A) Initial point B) Central point
C) Centroid D) Centre of gravity

Answer: D) Centre of gravity

62. What is the young's modulus if a wire of 2m long, 0.8 mm² in cross section increases its length by 1.6 mm on suspension of 8 kg weight from it?

- A) 12.5 kg/mm² B) 1.25 kg/mm²
C) 125 kg/mm² D) 12500 kg/mm²

Answer: D) 12500 kg/mm²

63. Which standard schedule of rates to be considered for estimation?

- A) Standard schedule of rates of the current year B) Standard schedule of rates of the last year
C) Standard schedule of rates of the average of last 5 years D) Standard schedule of rates of the average of the last 10 years

Answer: A) Standard schedule of rates of the current year

64. What is the weight of the iron ball has volume of 250 cc and density 7.5 gm/cc?

- A) 1750 gram B) 1785 gram
C) 1875 gram D) 1975 gram

Answer: C) 1875 gram

65. What is the main factor to be considered while preparing a detailed estimate?

- A) Shape of material B) Location of material
C) Brand of the materials D) Quantity, availability and transportation of materials

Answer: D) Quantity, availability and transportation of

materials

66. Which state of equilibrium's example is A cone resting on its tip?

- A) Neutral
- B) Unstable
- C) Horizontal
- D) Stable

Answer: B) Unstable

67. Which one is related to estimation of work?

- A) Hand book
- B) Bill of material
- C) Packing
- D) Information table

Answer: B) Bill of material

68. Which IE rules are to be verified on completion of wiring on any new installation?

- A) IE Rules, 1956
- B) IE Rules, 1960
- C) IE Rules, 1967
- D) IE Rules, 1961

Answer: A) IE Rules, 1956

69. Which symbol is used to express change in length?

- A) I
- B) e
- C) L
- D) delta I

Answer: D) delta I

70. What is the safe stress if the ultimate stress of a material is 35 kg/mm² and factor of safety is 5?

- A) 7
- B) 1.43
- C) 0.7
- D) 0.143

Answer: A) 7

71. What is the term used for the method of calculating various quantities and expenditure on a particular job or process?

- A) Estimation
- B) Specification
- C) Plan
- D) Drawing

Answer: A) Estimation

72. What is the total cost of painting of a class room including ceiling, if the size of length is 6m, breadth is 5m and height is 4m. (Painting + labour cost Rs.150/- per sq.m)

- A) Rs.16700/-
- B) Rs.15000/-
- C) Rs.17700/-
- D) Rs.18700/-

Answer: C) Rs.17700/-

73. What is the ratio between lateral strain and longitudinal strain?

- A) Bulk modulus
- B) Young's modulus
- C) Hooks law
- D) Poisson's ratio

Answer: D) Poisson's ratio

74. What is the total estimation cost for making the component of 8 drilled hole dia 10 mm and 4 Numbers of M6

taps in the plate, if Rs.8/- per drilled holes and Rs.12 per drill and tap?

- A) Rs.112
- B) Rs.100
- C) Rs.102
- D) Rs.110

Answer: A) Rs.112

75. What is a hand book?

- A) Model book of various works
- B) Design book of latest works
- C) Type of reference work or other collection of instruction
- D) Dictionary of materials

Answer: C) Type of reference work or other collection of instruction

76. What is the maximum percentage of stretch of its original length is allowable for elastic materials?

- A) 400%
- B) 300%
- C) 200%
- D) 100%

Answer: B) 300%

77. Which affects the centre of gravity of the object

- A) Shape
- B) Mass
- C) Weight
- D) Density

Answer: B) Mass

78. What is the total labour charges for a particular wiring work completed in 2 days by one electrician and one helper.(Electrician @ ₹800/day and helper @ Rs 400/day)

- A) Rs. 3000
- B) Rs. 2400
- C) Rs. 1400
- D) Rs. 2000

Answer: B) Rs. 2400

79. What is the name of heat treatment process done to relieve strain and stress?

- A) Tempering
- B) Annealing
- C) Normalising
- D) Hardening

Answer: B) Annealing

80. What is the weight of a rectangular block of a cost iron of 250cm X 20cm X 8cm (density of cast iron is 7.8 gm/cm³)?

- A) 372 kg
- B) 410 kg
- C) 312 kg
- D) 525 kg

Answer: C) 312 kg

81. What is the ratio of change in length to original length?

- A) Linear strain
- B) Poisson's ratio
- C) Lateral strain
- D) Volumetric strain

Answer: A) Linear strain

82. What describes the detailed specification for the item of

work?

- A) Tax, Transport, Overhead expenses
B) Maintenance, Stock, Cost
C) Colour
D) Quality, Quantity, Workmanship, Method of execution

Answer: D) Quality, Quantity, Workmanship, Method of execution

83. Which of the impurity in cast iron makes it hard and brittle?

- A) Silicon
B) Sulphur
C) Manganese
D) Phosphorus

Answer: B) Sulphur

84. What is the use of engineering drawing?

- A) For estimation of material and execution of work
B) For increasing the cost
C) For colourful appearance
D) For reducing the cost

Answer: A) For estimation of material and execution of work

85. What force will be required to punch a hole of 10 mm dia in a 1 mm thick plate, if the allowable shear stress is 50N/mm²? (Pi = 22/7)

- A) 1577 N
B) 1571.4 N
C) 1575 N
D) 1757 N

Answer: B) 1571.4 N

86. Who prepares the cost of estimation?

- A) Operator
B) Estimator
C) Quality Inspector
D) Draughts man

Answer: B) Estimator

87. What is the centre of gravity of a sphere?

- A) At the diameter
B) On the circumference
C) At the radius
D) At the centre

Answer: D) At the centre

88. What is the centre of gravity of a rectangular body?

- A) Shorter side of rectangle
B) Longer side of rectangle
C) At the point of intersection of its diagonals
D) At the corners

Answer: C) At the point of intersection of its diagonals

89. What is the name of the structure formed, if a steel is heated for about 723 Degree C?

- A) Austenite
B) Ferrite
C) Cementite
D) Martensite

Answer: A) Austenite

90. Which process produce equilibrium conditions?

- A) Normalising and Tempering
B) Normalising and Tempering
C) Annealing and Normalising
D) Annealing and Hardening

Answer: C) Annealing and Normalising

91. Which hand book referred by machine engineer?

- A) Parry's cheorikal
B) Oxford Dictionary
C) Mark standard
D) CRC

Answer: C) Mark standard

92. What is the total cost to assemble 10 personal computer systems, spares cost as given for one system: 1 TB hard disc Rs.4500/-, Intel i3 motherboard Rs.7000/-, SMPS Rs.2500/-, monitor Rs.6000/-, keyboard Rs.1000/-, other material cost (Switches, USB, Cabl

- A) Rs.225000/-
B) Rs.265000/-
C) Rs.275000/-
D) Rs.250000/-

Answer: C) Rs.275000/-

93. What is the estimation of milling cost of a rectangular block size 100 X 80 X60 mm, if cost of the milling is Rs.2/sq.cm?

- A) Rs.572/-
B) Rs.652/-
C) Rs.960/-
D) Rs.752/-

Answer: D) Rs.752/-

94. Which is elastic material?

- A) Celluloid
B) Nylon
C) Polystyrenes
D) Polycarbonates

Answer: B) Nylon

95. What is the other term used for reference table?

- A) Bibliography
B) Information Table
C) Dictionary
D) Biography

Answer: B) Information Table

96. What is the centre of gravity of a semi circle of diameter 12 cm?

- A) 3.25 cm
B) 2.75 cm
C) 2.24 cm
D) 2.54 cm

Answer: D) 2.54 cm

97. What is the term used for maximum stress attained by a material before rupture?

- A) Ultimate stress
B) Tensile stress
C) Working stress
D) Compressive stress

Answer: A) Ultimate stress

98. What is the tensile strain if a force of 3.2 KN is applied to a bar of original length 2800 mm extends the bar by 0.5 mm?

- A) 0.0001968
B) 0.0001786

C) 0.0001867

D) 0.0001687

Answer: B) 0.0001786
