

WORKSHOP AND CALCULATION

Q. ID: ITISKILL0710WV

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Question Paper

Duration: 30 Mins

Total Marks: 98

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Student Name: _____ Roll No: _____

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

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

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

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

3. What is the purpose of tempering a steel?

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

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

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

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

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

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

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

7. Which is a kind of surface hardening process?

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

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

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

9. 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

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

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

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

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

12. 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

13. What is the formula for bulk modulus?

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

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

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

15. Which specification is other than general specification?

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

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

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

17. Which of the impurity in cast iron makes it hard and

brittle?

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

18. What is a total cost?

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

19. 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.18700/- |
| C) Rs.15000/- | D) Rs.17700/- |

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

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

21. Which one of the following geometrical shapes centre of gravity lies from its base is $\frac{1}{3}$ of its height?

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

22. What is the process of heat treatment?

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

23. What is the safe stress if the ultimate stress of a material is 35 kg/mm^2 and factor of safety is 5?

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

24. 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. 12 lakhs | B) Rs. 20 lakhs |
| C) Rs.10 lakhs | D) Rs. 15 lakhs |

25. Who prepares the cost of estimation?

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

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

- | | |
|-------------------|-------------------|
| A) $\frac{4r}{5}$ | B) $\frac{r}{2}$ |
| C) $\frac{3r}{8}$ | D) $\frac{3r}{4}$ |

27. 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) 0.001 | B) 0.1 |
| C) 0.01 | D) 0.0001 |

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

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

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

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

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

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

31. What is the ratio between stress and strain?

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

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

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

33. Which hand book referred by machine engineer?

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

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

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

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

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

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

- | | |
|----------------------|---------------|
| A) Information Table | B) Dictionary |
|----------------------|---------------|

C) Bibliography

D) Biography

A) Hand book

B) Hand tool

C) Good book

D) New book

37. 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) 125 kg/mm²

B) 1.25 kg/mm²

C) 12.5 kg/mm²

D) 12500 kg/mm²

38. Which one is included in machining estimation sheet?

A) Transport cost

B) Advertisement cost

C) Raw material cost

D) Tax

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

A) Nitriding in Quenching tank

B) Silver nitriding

C) Gas nitriding

D) Nitriding in salt-bath

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

A) Modulus of rigidity

B) Bulk modulus

C) Modulus of elasticity

D) Yield point

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

A) Drawing

B) Raw materials

C) Specification of materials

D) Price catalogue

42. Which one is the ratio of stress?

A) Load and time

B) Load and area

C) Load and diameter

D) Load and direction

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

A) 5 minutes

B) 20 minutes

C) 10 minutes

D) 15 minutes

44. What is the unit of strain?

A) Newton/metre²

B) Kg/cm²

C) Metre

D) No unit

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

A) 300%

B) 400%

C) 200%

D) 100%

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

47. 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/mm²

B) 1000 kg/mm²

C) 100 kg/mm²

D) 1 kg/mm²

48. Which is thermo plastic material?

A) Nylon

B) Vinyl polymers

C) Neoprene

D) Butyl rubber

49. What cables are used for 132KV lines?

A) Super tension

B) Extra high tension

C) Extra super voltage

D) High tension

50. 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

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

A) 2.75 cm

B) 2.54 cm

C) 2.24 cm

D) 3.25 cm

52. What describes the detailed specification for the item of work?

A) Quality, Quantity, Workmanship, Method of execution

B) Tax, Transport, Overhead expenses

C) Colour

D) Maintenance, Stock, Cost

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

A) Longer side of rectangle

B) At the point of intersection of its diagonals

C) At the corners

D) Shorter side of rectangle

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

A) Density

B) Mass

C) Weight

D) Shape

55. What is the relative permittivity of rubber?

A) Between 8 and 10

B) Between 12 and 14

C) Between 5 and 6

D) Between 2 and 3

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

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

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

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

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

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

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

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

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

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

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

- A) δl
C) L
- B) l
D) e

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

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

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

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

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

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

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

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

66. What is the main factor to be considered while preparing

a detailed estimate?

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

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

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

68. Which force acts on rivets?

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

69. 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) 0.0001867
C) 0.0001786
- B) 0.0001687
D) 0.0001968

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

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

71. 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 mother board Rs.7000/-, SMPS Rs.2500/-, monitor Rs.6000/-, keyboard Rs.1000/-, other material cost (Switches, USB, Cabl

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

72. Which one is the most reliable estimate?

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

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

- A) Yield point
C) Youngs modulus
- B) Ultimate stress
D) Factor of safety

74. What is a hand book?

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

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

- A) At the point of intersection of its diagonals
B) At the corners

C) Shorter side of rectangle D) Longer side of rectangle

A) Linear strain

B) Lateral strain

C) Volumetric strain

D) Poisson's ratio

76. 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) 1575 N

B) 1757 N

C) 1571.4 N

D) 1577 N

77. What is a under estimate?

A) No work started as per estimate

B) An estimate is fell short of the actual estimate

C) An estimate is exceeded the actual estimate

D) An estimate perfectly matches with actual

78. Which force acts on crank shaft?

A) Shear stress

B) Torsional stress

C) Tensile stress

D) Compressive stress

79. Which process produce equilibrium conditions?

A) Annealing and Normalising

B) Annealing and Hardening

C) Normalising and Tempering

D) Normalising and Tempering

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

A) Unstable

B) Horizontal

C) Stable

D) Neutral

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

A) Cone

B) Square

C) Rhombus

D) Triangle

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

A) Annealing, Normalising, Hardening and Tempering

B) Tempering, Cooling, Packing and Solling

C) Hardening, Soaking, Painting and Packing

D) Normalising, Heating, Cooling and Painting

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

A) h/5

B) h/2

C) h/3

D) h/4

84. Which one is related to estimation of work?

A) Hand book

B) Packing

C) Information table

D) Bill of material

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

86. What is an over estimate?

A) When an estimate is fell short of the actual estimate

B) When an estimate perfectly matches the actual estimate

C) When an estimate is exceeded to actual estimate

D) No work started as per estimate

87. Which is thermosetting plastic?

A) Melamine resins

B) Polystyrenes

C) Vinyl polymers

D) Celluloid

88. Which affects the centre of gravity of the object

A) Mass

B) Weight

C) Shape

D) Density

89. What is the use of engineering drawing?

A) For increasing the cost

B) For colourful appearance

C) For reducing the cost

D) For estimation of material and execution of work

90. 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.102

B) Rs.112

C) Rs.100

D) Rs.110

91. 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. 2400

B) Rs. 3000

C) Rs. 1400

D) Rs. 2000

92. 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.6,00,000

C) Rs.60,00,000

D) Rs.6,000,000

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.752/-

B) Rs.960/-

C) Rs.652/-

D) Rs.572/-

94. What are the various stages of heat treatment?

A) Heating, Cooling and Quenching

B) Heating, Soaking and Quenching

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

95. Which is elastic material?

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

96. Which authority publishes schedule of rates?

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

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

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

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

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