

THDCIL  
JUNIOR ENGINEER(MECHANICAL )  
SAMPLE PAPER-II  
[3-5-2017]

## TECHNICAL

1. The friction experienced by a body, when in motion, is known as

- a) rolling friction
- b) dynamic friction
- c) limiting friction
- d) static friction

2. Two balls of equal mass and of perfectly elastic material are lying on the floor. One of the ball with velocity  $v$  is made to struck the second ball. Both the balls after impact will move with a velocity

- a)  $v$
- b)  $v/2$
- c)  $v/4$
- d)  $v/8$

3. The velocity ratio in case of an inclined plane inclined at angle  $\theta$  to the horizontal and weight being pulled up the inclined plane by vertical effort is

- a)  $\sin \theta$
- b)  $\cos \theta$
- c)  $\tan \theta$
- d)  $\operatorname{cosec} \theta$

4. A body of weight  $W$  is required to move up on rough inclined plane whose angle of inclination with the horizontal is  $\alpha$ . The effort applied parallel to the plane is given by (where  $\mu = \tan \phi =$  Coefficient of friction between the plane and the body.)

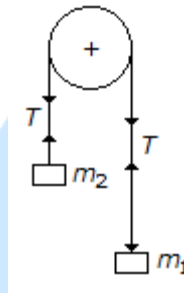
- a)  $P = W \tan \alpha$

- b)  $P = W \tan(\alpha + \phi)$
- c)  $P = W (\sin \alpha + \mu \cos \alpha)$
- d)  $P = W (\cos \alpha + \mu \sin \alpha)$

5. A smooth cylinder lying on its convex surface remains in \_\_\_\_\_ equilibrium.

- a) stable
- b) unstable
- c) neutral
- d) None of these

6. If the masses of both the bodies, as shown in the below figure, are reduced to 50 percent, then tension in the string will be



- a) Same
- b) Half
- c) Double
- d) None of these

7. The algebraic sum of the resolved parts of a number of forces in a given direction is equal to the resolved part of their resultant in the same direction. This is known as

- a). principle of independence of forces
- b) principle of resolution of forces
- c). principle of transmissibility of forces
- d). none of these

8. Military type of organization is known as

- a). line organization

- b). functional organisation
- c). line and staff organisation
- d). line, staff and functional organisation

**9. When a rigid body is suspended vertically, and it oscillates with a small amplitude under the action of the force of gravity, the body is known as**

- a). Simple pendulum
- b). Compound pendulum
- c). Torsional pendulum
- d). Second's pendulum

**10. Two like parallel forces are acting at a distance of 24 mm apart and their resultant is 20 N. If the line of action of the resultant is 6 mm from any given force, the two forces are**

- a). 15 N and 5 N
- b). 20 N and 5 N
- c). 15 N and 15 N
- d). none of these

**11. The value of bulk modulus of a fluid is required to determine**

- a). Reynold's number
- b). Froude's number
- c). Mach number
- d). Euler's number

**12. In a depressed nappe**

- a). the pressure below the nappe is atmospheric
- b). the pressure below the nappe is negative
- c). the pressure above the nappe is atmospheric
- d). the pressure above the nappe is negative

**13. In one dimensional flow, the flow**

- a). is steady and uniform
- b). takes place in straight line
- c). takes place in curve
- d). takes place in one direction

**14. The kinematic viscosity is the**

- a). ratio of absolute viscosity to the density of the liquid
- b). ratio of density of the liquid to the absolute viscosity
- c). product of absolute viscosity and density of the liquid
- d). product of absolute viscosity and mass of the liquid

**15. Forces are called concurrent when their lines of action meet at**

- a) One point
- b) Two points
- c) A plane
- d) Perpendicular planes

**16. Force keeping the planets in a regular orbit is**

- a) Electrostatic force
- b) Magnetic force
- c) Nuclear force
- d) Gravitational force

**17. A hollow shaft of same cross-section area as solid shafts transmits**

- a) Same torque
- b) Less torque
- c) More torque
- d) Unpredictable

**18. As the slenderness ratio of the column increases, its compressive strength**

- a) Increases
- b) Decreases
- c) Remains unchanged
- d) Unpredictable

**19. The stress at which a material fractures under large number of reversals of stress is called**

- a) Creep
- b) Endurance
- c) Residual stress
- d) Ultimate strength

**20. Belt drive is**

- a) A positive drive
- b) Not a positive drive
- c) Used for small torque transmission
- d) None of these

**21. The distance by which the outer edge of the D-slide valve overlaps the steam port in a steam engine, is known as**

- a) Lead
- b) Exhaust lap
- c) Steam lap
- d) None of these

**22. When a ship travels in a sea, which of the effect is more dangerous**

- a) Steering
- b) Pitching
- c) Rolling
- d) All of these

**23. Cam used low and moderate speed engines should move with**

- a) Uniform velocity
- b) Uniform acceleration
- c) Harmonic motion
- d) Cycloidal motion

**24. The piston rod of a steam engine is usually connected by the cross head by means of**

- a) Bolted joint
- b) Cotter joint
- c) Universal joint
- d) Knuckle joint

**25. The metacentric height of ocean going vessel is usually of the order of**

- a) 30 cm to 1.2 m
- b) 1.8 m to 2.0 m
- c) 3 m to 5 m
- d) 5 m to 7 m

**26. Head loss in turbulent flow in pipe varies directly as the**

- a) Velocity
- b) Square of velocity
- c) Square root of velocity
- d) Cube root of velocity

**27. The viscosity of a fluid varies with**

- a) Temperature and pressure
- b) Temperature
- c) Pressure
- d) Density

**28. The Exact analysis of viscous flow problem can be made by**

- a) Euler's equation
- b) Continuity equation
- c) Navier-Stokes equation
- d) Hagen poiseuille's equation

**29. A square engine has**

- a) Square cylinder
- b) Square piston
- c) Cylinder bore equal to stroke length
- d) None of these

**30. In diesel engine, the governor controls**

- a) Fuel pressure
- b) Fuel volume
- c) Fuel flow rate
- d) Fuel temperature

**31. In petrol engine, air-fuel ratio is controlled by**

- a) Distributer
- b) Injector

c) Governor                      d) Carburettor

**32. Multi-stage turbines are**

- a) Reaction type
- b) Pressure compounded
- c) Velocity compounded
- d) All of these

**33. Actual power generated in engine cylinder, is known as**

- a) Brake horse power
- b) Indicated horse power
- c) One boiler horse power
- d) Fractional horse power

**34. Thermodynamic efficiency of a steam turbine as compared to steam engine is**

- a) Less                              b) More
- c) Same                            d) None of these

**35. Steam in boiler is always**

- a) Wet
- b) Dry
- c) Superheated
- d) Both wet and dry

**36. Air vessel is used in reciprocating pump to obtain**

- a) Rise in delivery head
- b) Reduction of suction head
- c) Increase in supply of water
- d) Continuous supply of water at uniform rate

**37. Which will be the product, if iron ore goes through reduction and blast furnace treatment?**

- a) Pig iron                      b) White cast iron
- c) Wrought iron                d) Ductile cast iron

**38. Mixture formation in a carburettor is based on the principle of**

- a) Pascal's law
- b) Buoyancy principle
- c) Venture principle

d) Pitot tube principle

**39. The firing order for six cylinder diesel engine is**

- a) 1, 3, 5, 2, 4, 6
- b) 1, 5, 3, 6, 2, 4
- c) 1, 4, 2, 6, 3, 5
- d) 1, 6, 3, 5, 2, 4

**40. Which part is not common in diesel and petrol engines**

- a) Air filter                      b) Battery
- c) Exhaust silencer            d) Fuel injector

**41. Amount of current required in electric resistance welding is regulated by changing the**

- a) Input supply
- b) Primary turns of the transformers
- c) Secondary turns of the transformers
- d) All of these

**42. In gas welding, maximum flame temperature occurs at**

- a) Inner core
- b) Outer core
- c) Next to inner core
- d) Tip of the flame

**43. Material having highest cutting speed is**

- a) Aluminium
- b) Bronze
- c) Cast iron
- d) High carbon steel

**44. In lathe, the carriage and tailstock are guided on**

- a) Same guide ways
- b) Different guide ways
- c) Not guided on guide ways
- d) Both a) and b)

**45. In machine tools, chatter is due to**

- a) Free vibrations
- b) Random vibrations
- c) Forced vibrations
- d) Self-excited vibrations

**46. Buffing process is used**

- a) To achieve flatness
- b) To achieve roundness
- c) To improve surface finish
- d) To obtain very smooth reflective surface

**47. Grinding speed (surface meter per minute) is used for grinding plain carbon steel is**

- a) 250 – 500
- b) 500 – 900
- c) 1000 – 1500
- d) 1500 – 2000

**48. Grinding wheel is balanced**

- a) At the time of manufacture
- b) Before grinding operation
- c) After grinding operation
- d) Frequently

**49. Boring tool for boring a hole over a large length should have**

- a) One tool bit on a bar
- b) Two tool bits fitted on diametrically opposite sides of
- c) Three tool bits equally spaced on a bar
- d) Four or more tool bits

**50. Point angle of  $135^\circ$  on drills is used for**

- a) Hard steel and nickel alloys
- b) Thin sheet metal
- c) Both a) and b)
- d) None of these

**51. What will happen to rotor copper loss if the frequency of the**

**input to an induction meter increases?**

- a) Increases
- b) Decreases
- c) Remains same
- d) None of these

**52. A taper tap has**

- a) Full thread for the whole of its length
- b) Its end tapered for about 3 to 5 threads
- c) Its end tapered for about 8 to 10 threads
- d) None of these

**53. Twist drill is a**

- a) Front cutting tool
- b) Side cutting tool
- c) End cutting tools
- d) None of these

**54. Operation of beveling the extreme end of a work piece, is known as**

- a) Chamfering
- b) Grooving
- c) Counter sinking
- d) Counter boring

**55. Knurling is an operation of**

- a) Cutting smooth collars
- b) Under cutting
- c) Roughing the surface for hand grip
- d) Enlarging hole size

**56. Centre used for holding hollow jobs on a lathe is**

- a) Half centre
- b) Pipe centre
- c) Square centre
- d) Revolving centre

**57. Swing diameter over bed as compared to that over carriage is**

- a) More
- b) Less



c) Same                      d) None of these

**58. In layout work, a pencil should not be used to draw lines on metal because**

- a) It will wipe off easily
- b) The line will be too wide for accurate work
- c) The line will smudge and difficult to see
- d) The lines will remain on metal even after good rubbing

**59. Under thermal and electrical system analogy, charge is considered analogous to**

- a) Temperature
- b) Reciprocal temperature
- c) Heat flow
- d) Reciprocal heat flow

**60. A piezometer cannot be used for pressure measurement in pipes when**

- a) Pressure difference is low
- b) Velocity is high
- c) Fluid in the pipe is a gas
- d) Fluid is highly viscous

**61. Cavitation will begin when**

- a) Pressure at any location reaches pressure equal to the saturated vapour pressure of the liquid
- b) Pressure becomes more than critical pressure
- c) Flow is increased
- d) Pressure is increased

**62. Broadly speaking, water is**

- a) 10 times more compressible than steel
- b) 80 times more compressible than steel
- c) 80 times less compressible than steel

d) 800 times less compressible than steel

**63. Direct on-line starters are not suitable for starting large D.C. motors because**

- a) The motor may not start
- b) Large voltage drop may occur in the supply mains
- c) The starting torque becomes very low
- d) The motor may run away

**64. Which of the following is not a part of squirrel case induction motor?**

- a) Rotor                      b) Stator
- c) Carbon brushes      d) Shaft

**65. Steel having combination of 6.67% carbon and 93.33% iron is known as**

- a) Cementite              b) Pearlite
- c) Martensitic            d) Austenitic

**66. Raw material for all iron and steel products is**

- a) Cast iron              b) Pig iron
- c) Wrought iron        d) Steel

**67. The process extensively used for making bolts and nuts is**

- a) Hot piercing
- b) Extrusion
- c) Cold peening
- d) Cold heading

**68. Ability of a material to exhibit considerable elastic recovery on release of load, is known as**

- a) Toughness
- b) Stiffness
- c) Resilience
- d) Hardness

**69. Ability of a material to resist deformation due to stress is known as**

- a) Toughness
- b) Stiffness
- c) Plasticity
- d) Hardness

**70. During cold working process**

- a) Grain structure is distorted
- b) Strength and hardness of metal increases
- c) Surface finish is improved
- d) All of these

**71. A body of weight 100 N falls freely through a distance of 10 m against an atmospheric drag force of 5 N, considering the body as the system, the work interaction is**

- a) 1000 Nm
- b) 1050 Nm
- c) 950 Nm
- d) 50 Nm

**72. For a closed system, the difference between the heat added to the system and work done by the system is equal to the change in**

- a) Enthalpy
- b) Entropy
- c) Temperature
- d) Internal energy

**73. In PERT analysis, the time estimates of activities and probability of their occurrence follow a**

- a) Normal distribution curve
- b)  $\beta$  distribution curve
- c) Poisson's distribution cure
- d) Binomial distribution curve

**74. Profile of a gear tooth can be checked by**

- a) Sine bar
- b) Optical pyrometer
- c) Optical projector
- d) Slip gauges

**75. Accurate centering of work mounted in an independent chuck can be determined by using a**

- a) Centre gauge
- b) Height gauge
- c) Dial indicator
- d) Surface gauge

**76. The lost motion of the spindle in micrometer screw gauge when the rotation of the thimble is changed in direction is referred to as**

- a) Wear
- b) Least count
- c) Backlash
- d) Total error

**77. On a triple thread screw**

- a) Lead = Pitch
- b) Lead = 3 Pitch
- c) Lead = 1/3 Pitch
- d) Lead = 9 Pitch

**78. Solder is an alloy of**

- a) Copper & Tin
- b) Lead & Tin
- c) Lead & Copper
- d) Copper & Aluminium

**79. When steel containing more than 0.8% carbon is cooled slowly below the lower critical point, it contains**

- a) Ferrite mainly
- b) Pearlite mainly
- c) Ferrite & pearlite
- d) Pearlite & cementite

**80. The usual ratio of forward and return stroke is shaper is**

- a) 2 : 1
- b) 1 : 2
- c) 2 : 3
- d) 3 : 2

**81. Essential property of tool material used for high speed machining is**

- a) Red hardness and impact resistance
- b) Red hardness and wear resistance
- c) Toughness and impact resistance
- d) Red hardness, wear resistance and toughness

**82. In gang milling**

- a) Several jobs can be performed in one setup
- b) One job is completed on several milling machines located together
- c) Two or more cutters are mounted on the arbour and all of them remove the metal simultaneously
- d) None of these

**83. In grinding operation, for grinding softer materials**

- a) Coarser grain size is used
- b) Fine grain size is used
- c) Medium grain size is used
- d) Any grain size may be used

**84. Abrasive used for grinding ceramics and tungsten carbide is**

- a) Diamond
- b) Aluminium oxide
- c) Silicon carbide
- d) Boron carbide

**85. The work measurement is done by means of**

- a) Planning chart
- b) Process chart
- c) Gantt chart
- d) Stop watch

**86. The processes of improving cutting action of a grind wheel is called**

- a) Dressing operation
- b) Truing operation
- c) Cutting operation
- d) Facing operation

**87. Crack is developed in grinding wheel due to**

- a) Generation of heat
- b) High speed
- c) Slow speed
- d) Hard work piece

**88. Part of universal grinding machine which can be swiveled with respect to table travel is**

- a) Grinding wheel
- b) Table
- c) Head stock
- d) Table slide

**89. Tolerance are specified**

- a) To obtained desired fit
- b) Because it is not possible to manufacture a size exactly
- c) To obtain higher accuracy
- d) To have proper allowance

**90. An important precaution to be observed during filing operation is**

- a) Not to rub finger over file
- b) Not to rub finger over the work piece
- c) To apply equal pressure on file
- d) To support file properly

**91. A hacksaw is specified by which of the parameter of the blade?**

- a) Material
- b) Length
- c) Width



- d) Number of teeth
- 92. If the diameter of the hole is subject to considerable variation, then for locating in jigs and fixtures, the pressure type of locator used is**
- a) conical locator
  - b) cylindrical locator
  - c) diamond pin locator
  - d) vee locator
- 93. The silicon carbide abrasive is chiefly used for grinding**
- a) cemented carbide
  - b) ceramic
  - c) cast iron
  - d) all of these
- 94. The work or surface speed for cylindrical grinding varies from**
- a) 5 to 10 m/min
  - b) 10 to 20 m/min
  - c) 20 to 30 m/min
  - d) 40 to 60 m/min
- 95. A push broach as compared to pull broach**
- a) has less number of teeth
  - b) is short and stocky
  - c) removes less material for each pass of the tool
  - d) all of the above
- 96. The facing is an operation of**
- a) bevelling the extreme end of a work piece
  - b) embossing a diamond shaped pattern on the surface of a work piece
  - c) reducing the diameter of a work piece over a very narrow surface
  - d) machining the ends of a work piece to produce a flat surface square with the axis
- 97. The correct sequence of tool materials in increasing order of their ability to retain their hot hardness is**
- a) carbide, ceramic, cermet, borazon
  - b) ceramic, carbide, borazon, cermet
  - c) cermet, carbide, ceramic, borazon
  - d) borazon, ceramic, carbide, cermet
- 98. The different spindle speeds on a lathe form**
- a) arithmetical progression
  - b) geometrical progression
  - c) harmonical progression
  - d) any one of these
- 99. The example of snag grinding is**
- a) trimming the surface left by sprues and risers on castings
  - b) grinding the parting line left on castings
  - c) removing flash on forgings
  - d) all of these
- 100. The top and sides of the table of a shaper usually have**
- a) L-type slots
  - b) T-type slots
  - c) I-type slots
  - d) any one of these
- 101. For softer materials, the point angle of the drill is kept**
- a) equal to  $118^\circ$
  - b) less than  $118^\circ$
  - c) more than  $118^\circ$
  - d) any one of these

**102. The object of caulking in a riveted joint is to make the joint**

- a) free from corrosion
- b) stronger in tension
- c) free from stresses
- d) leak-proof

**103. Two closely coiled helical springs 'A' and 'B' are equal in all respects but the number of turns of spring 'A' is half that of spring 'B'. The ratio of deflections in spring 'A' to spring 'B' is**

- a) 1/8
- b) 1/4
- c) 1/2
- d) 2

**104. Which of the following statement is wrong ?**

- a) Locomotive boiler is a water tube boiler.
- b) Water tube boilers are internally fired.
- c) La-mont boiler is a low pressure water tube boiler.
- d) all of the above

**105. The draught in locomotive boilers is produced by a**

- a) chimney
- b) centrifugal fan
- c) steam jet
- d) none of these

**106. In a four stroke cycle, the minimum temperature inside the engine cylinder occurs at the**

- a) beginning of suction stroke
- b) end of suction stroke
- c) beginning of exhaust stroke
- d) end of exhaust stroke

**107. The exhaust valve in a four stroke cycle petrol engine**

- a) opens at 50° before bottom dead centre and closes at 15° after top dead centre
- b) opens at bottom dead centre and closes at top dead centre
- c) opens at 50° after bottom dead centre and closes at 15° before top dead centre
- d) may open and close anywhere

**108. In a four stroke cycle petrol engine, the charge is ignited at**

- a) 30° before top dead centre
- b) 30° after top dead centre
- c) 30° before bottom dead centre
- d) 30° after bottom dead centre

**109. The pressure at the end of compression, in diesel engines, is approximately**

- a) 10 bar
- b) 20 bar
- c) 25 bar
- d) 35 bar

**110. The fuels in order of decreasing knock tendency for spark ignition engines are**

- a) paraffins, aromatics, naphthenes
- b) paraffins, naphthenes, aromatics
- c) naphthenes, aromatics, paraffins
- d) naphthenes, paraffins, aromatics

**111. The humidity ratio or specific humidity is the mass of water vapour present in**

- a) 1 m<sup>3</sup> of wet air
- b) 1 m<sup>3</sup> of dry air
- c) 1 kg of wet air
- d) 1 kg of dry air

**112. The formation of frost on cooling coils in a refrigerator**

- a) increases heat transfer
- b) improves C.O.P. of the system

- c) increases power consumption
- d) reduces power consumption

**113. The by-pass factor for a cooling coil**

- a) increases with increase in velocity of air passing through it
- b) decreases with increase in velocity of air passing through it
- c) remains unchanged with increase in velocity of air passing through it
- d) may increase or decrease with increase in velocity of air passing through it depending upon the condition of air entering

**114. The difference between dry bulb temperature and wet bulb temperature, is called**

- a) dry bulb depression
- b) wet bulb depression
- c) dew point depression
- d) degree of saturation

**115. In a lithium bromide absorption refrigeration system**

- a) lithium bromide is used as a refrigerant and water as an absorbent
- b) water is used as a refrigerant and lithium bromide as an absorbent
- c) ammonia is used as a refrigerant and lithium bromide as an absorbent
- d) none of the above

**116. In second type of levers,**

- a) load is in between the fulcrum and effort
- b) effort is in between the fulcrum and load

- c) fulcrum is in between the load and effort
- d) none of these

**117. In unilateral system of tolerance, the tolerance is allowed on**

- a) one side of the actual size
- b) one side of the nominal size
- c) both sides of the actual size
- d) both sides of the nominal size

**118. The load cup of a screw jack is made separate from the head of the spindle to**

- a) enhance the load carrying capacity of the jack
- b) reduce the effort needed for lifting the working load
- c) prevent the rotation of load being lifted
- d) reduce the value of frictional torque

**119. In inventory control theory, the economic order quantity is**

- a) average level of inventory
- b) optimum lot size
- c) capacity of a warehouse
- d) lot size corresponding to break-even analysis

**120. Production cost refers to prime cost plus**

- a) factory overheads
- b) factory and administration overheads
- c) factory, administration and sales overheads
- d) factory, administration, sales overheads and profit

## **GENERAL AWARENESS/ APTITUDE**

**121. A's salary is 35% of that of B's salary. B's salary is 40% of that of C's salary. If their total salary is Rs. 19,250, the difference between A's and B's salaries is**

- a) Rs. 3,250
- b) Rs. 3,500
- c) Rs. 325
- d) Rs. 7, 500

**122. Kundan purchased 16 kg. wheat at Rs. 9.40/kg. and 25 kg. wheat at Rs. 8.50/kg. He sold the mixture of both varieties at Rs. 8.95/kg. What is the gain or loss?**

- a) profit of Rs. 4.05
- b) No profit no loss
- c) Profit of Rs. 5.00
- d) Loss of Rs. 7.50

**123. What is the greatest number that will exactly divide 48, 168, 324 and 1400?**

- a) 14
- b) 4
- c) 16
- d) 8

**124. Sonu spent 15% of his income on clothes, 30% on food, and 10% on transport. If he has left with Rs. 900 what is his income?**

- a) Rs. 1, 500
- b) Rs. 2,000
- c) Rs. 1,635
- d) Rs. 1, 000

**125. Population of a village decreases annually by 20%. If its population 2 years ago was 10, 000, what will be its present population?**

- a) 6,000
- b) 1000/144
- c) 6, 400
- d) 7, 600

**126. A man spends 15% of his income in board and lodging, 10% of the remainder in other personal necessities and 5% of the rest in charity. If his income is Rs. 20000, find the amount left by him at the end.**

- a) Rs. 14535
- b) Rs. 14353
- c) Rs. 14533
- d) Rs. 15435

**127. 15 men work 8 hours daily to complete a work in 21 days. In how many days will 14 men complete the work by working 6 hours daily?**

- a) 21
- b) 27
- c) 28
- d) 30

**128. A large blood vessel that carries blood away from the heart is called**

- a) a vein
- b) an artery
- c) a capillary
- d) nerve

**129. Which of the following is an air-borne disease?**

- a) Measles
- b) Pink eye
- c) Typhoid
- d) Tuberculosis

**130. Har gobind Khoran's work relates to**

- a) synthesis of simple DNA
- b) understanding the genetic code

- c) reduction of mutation
- d) synthesis of RNA from bacterial cell

- b) 1 : 2
- c) 2 : 1
- d) 4 : 1

**131. SEBI is a**

- a) statutory body
- b) advisory body
- c) constitutional body
- d) non-statutory body

**132. Which of the following is not part of World Bank Group?**

- a) IBRD
- b) IFC
- c) IDA
- d) ACB

**133. Mohiniattam is folk dance of**

- a) Tamil Naidu
- b) Andhra Pradesh
- c) Kerala
- d) Karnataka

**134. Spherical shape of rain droplet is due to**

- a) cohesion
- b) surface tension
- c) adhesion
- d) capillary action

**135. What is the greatest number that will divide 29, 60 and 103 and will leave as remainders 5, 12 and 7 respectively?**

- a) 24
- b) 16
- c) 12
- d) 14

**136. A certain distance is covered by a vehicle at a certain speed. If half of this distance is covered by another vehicle in double the time, the ratio of the speeds of the two vehicles is**

- a) 1 : 4

**137. The average age of students in section A of 50 students is 14 years and the average age of students in section B of 30 students is 6 years. Find the average age of students in both sections taken together.**

- a) 11
- b) 13
- c) 12
- d) 14

**138. The ratio of lengths of two trains is 5 : 3 and the ratio of their speeds is 6 : 5. The ratio of times taken by them to cross a pole is**

- a) 5 : 6
- b) 11 : 8
- c) 25 : 18
- d) 27 : 16

**139. The price of sugar is increased by 20%. As a result, a family has decreased its consumption by 20%. The expenditure of the family on sugar is decreased by**

- a) 0 %
- b) 2.5%
- c) 4%
- d) 5%

**140. The ratio of the present ages of Rahul and Rashmi is 2 : 1. The ratio of their ages after 30 years will be 7 : 6. What is the present age of Rahul?**

- a) 6 years
- b) 10 years
- c) 12 years
- d) 20 years



**141. The price of sugar is increased by 20%. If the expenditure on sugar has to be kept the same as earlier, the ratio between the reduction in consumption and the original consumption is**

- a) 1 : 3
- b) 1 : 4
- c) 1 : 6
- d) 1 : 5

**142. A, B and C can complete a work in 10, 12 and 15 days respectively. They started the work together. But A left the work before 5 days of its completion. B also left the work 2 days after A left. In how many days was the work completed?**

- a) 4
- b) 5
- c) 7
- d) 8

**143. A fan is listed at Rs. 1,400 and the discount offered is 10%. What additional discount must be given to bring the net selling price to Rs. 1,200?**

- a)  $16\frac{2}{3}\%$
- b) 5%
- c)  $4\frac{16}{21}\%$
- d) 6%

**144. The contents of two vessels containing water and milk are in the ratio 3 : 4 and 5 : 4 are mixed in the ratio 1 : 4. The resulting mixture will have water and milk in the ratio \_\_\_\_\_.**

- a) 184 : 176
- b) 167 : 184
- c) 167 : 148

d) 148. 167

**145. A man goes from A to B at a uniform speed of 12 kmph and returns with a uniform speed of 4 kmph. His average speed (in kmph) for the whole journey is**

- a) 8
- b) 7.5
- c) 6
- d) 4.5

**146. What number should be subtracted from both terms of the ratio 15 : 19 in order to make it 3 : 4?**

- a) 9
- b) 6
- c) 5
- d) 3

**147. A reduction of 20% in the price of oranges enables a man to buy 5 oranges more for Rs. 10/-. The price of an orange before reduction was:**

- a) 20 paise
- b) 40 paise
- c) 50 paise
- d) 60 paise

**148. In an examination, a student who gets 20% of the maximum marks fails by 5 marks. Another student who scores 30% of the maximum marks gets 20 marks more than the pass marks. The necessary percentage required for passing is :**

- a) 32%
- b) 23%
- c) 22%
- d) 20%

**149. A bag contains rupee, 50-paise and 25-paise coins in the ratio 3 : 4 :**

**5. If the total amount in the bag is Rs. 625, find the no. of coins of 25-paise.**

- a) 125
- b) 1250
- c) 500
- d) 1000

**150. If 3 men or 6 women can do a piece of work in 16 days. in how many days can 12 men and 8 women do the same piece of work?**

- a) 4 days
- b) 5 days
- c) 3 days
- d) 2 days

**151. Which of the following is busiest airport of India?**

- a) Delhi
- b) Mumbai
- c) Bengaluru
- d) Chennai

**152. The name 'Xerox', was basically the name of**

- a) person
- b) company
- c) city
- d) none of these

**153. The largest number of Buddhists is found in**

- a) Bihar
- b) Karnataka
- c) Maharashtra
- d) UP

**154. Ghatotkach was the son of**

- a) Duryodhana
- b) Arjuna
- c) Yudhisthira
- d) Bhima

**155. Which of the following is not a member of SAARC?**

- a) Bhutan
- b) Bangladesh
- c) Burma
- d) Maldives

**156. India's first indigenously built sub-marine is**

- a) INS Shahkul
- b) INS Savitri
- c) INS Vibhuti
- d) INS Shalki

**157. The first recipient of the Dada Saheb Phalke Award was**

- a) B. N. Sarkar
- b) Prithvi Raj Kapoor
- c) Devika Rani
- d) Kanan Devi

**158. On what sum does the difference between the compound in interest and the simple interest for 3 years at 10% is Rs. 31 ?**

- a) Rs. 1500
- b) Rs. 1200
- c) Rs. 1100
- d) Rs. 1000

**159. At what percent per annum will Rs. 3000/- amount to Rs. 3993 in 3 years if the interest is compounded annually?**

- a) 9%
- b) 10%
- c) 11%
- d) 13%

**160. If the area of three adjacent faces of a cuboidal box are  $120 \text{ cm}^2$ ,  $72 \text{ cm}^2$  and  $60 \text{ cm}^2$ . Find the the volume of box.**

- a)  $820 \text{ cm}^3$
- b)  $720 \text{ cm}^3$

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c) 750 cm<sup>3</sup>

d) 760 cm<sup>3</sup>

Mechanical THDC Sample Paper-II Answers Key			
1. b	51. a	101. b	151. a
2. b	52. c	102. d	152. b
3. a	53. c	103. c	153. c
4. c	54. a	104. d	154. d
5. b	55. c	105. c	155. c
6. b	56. b	106. a	156. d
7. b	57. a	107. a	157. c
8. a	58. b	108. a	158. d
9. b	59. c	109. d	159. b
10. a	60. c	110. b	160. b
11. c	61. a	111. d	
12. b	62. b	112. c	
13. b	63. b	113. a	
14. a	64. c	114. b	
15. a	65. a	115. b	
16. d	66. b	116. a	
17. c	67. d	117. b	
18. b	68. c	118. c	
19. b	69. b	119. b	
20. b	70. d	120. a	
21. c	71. d	121. a	
22. c	72. d	122. a	
23. b	73. b	123. b	
24. b	74. c	124. b	
25. a	75. c	125. c	
26. b	76. c	126. a	
27. b	77. b	127. d	
28. c	78. b	128. b	
29. c	79. d	129. a	
30. c	80. d	130. b	
31. d	81. d	131. a	
32. d	82. c	132. d	
33. b	83. a	133. c	
34. b	84. a	134. b	
35. a	85. d	135. a	
36. d	86. a	136. d	
37. a	87. b	137. a	
38. c	88. c	138. c	
39. b	89. b	139. c	
40. d	90. b	140. c	
41. b	91. b	141. c	
42. a	92. a	142. c	
43. a	93. d	143. c	
44. b	94. c	144. c	
45. d	95. d	145. c	
46. d	96. d	146. d	
47. d	97. c	147. c	
48. d	98. b	148. c	
49. b	99. d	149. c	
50. c	100. b	150. c	

