

MIZORAM PUBLIC SERVICE
COMMISSION

*Technical Competitive Examinations for
Recruitment to the post of
Inspector of Legal Metrology
under Food, Civil Supplies & Consumer
Affairs Department*

Time Allowed : 2 hours
Full Marks : 150

Mechanical Engineering Paper-I

INVIGILATOR

CENTRE SUPERINTENDENT

Date of Exam. : 26/03/2010

Instructions to candidates:

- Enter your Roll No. in the box provided on the front page.
- Attempt all the questions.
- Each question is followed by probable answers. Choose the appropriate answer and mark it by putting '✓' mark on the corresponding box.
- If more than one answer boxes are marked for a question, the answer will be treated as wrong.
- On completion, you are to submit the booklet to the Invigilator.

Code Number :
(For Official Use)

Marks Obtained :

Examiner

Scrutiniser

MIZORAM PUBLIC SERVICE
COMMISSION

*Technical Competitive Examinations for
Recruitment to the post of
Inspector of Legal Metrology
under Food, Civil Supplies & Consumer
Affairs Department*

Time Allowed : 2 hours
Full Marks : 150

Mechanical Engineering Paper-I

Roll Number :

Date of Exam. : 26/03/2010

Code Number :
(For Official Use)

1. The unit of energy in S.I. unit is
(a) Watt (b) Joule
(c) Joule/s (d) Joule-metre
2. Specific heat of air at constant pressure is equal to
(a) 0.17 (b) 0.21
(c) 0.24 (d) 1.0
3. Which of the following laws states that internal energy of a gas is a function of temperature?
(a) Charles' law (b) Joule's law
(c) Boyle's law (d) none of the above
4. Work done in a free expansion process is
(a) positive (b) negative
(c) zero (d) maximum
5. Which of the following quantities is not the property of the system?
(a) Pressure (b) Temperature
(c) Density (d) Heat
6. On weight basis, air contains following parts of oxygen
(a) 23 (b) 21
(c) 25 (d) 73
7. Specific heat of air at constant volume C_v is equal to
(a) 0.17 (b) 0.21
(c) 0.24 (d) 1.0
8. Change in enthalpy of a system is the heat supplied at
(a) constant pressure (b) constant temperature
(c) constant volume (d) constant entropy
9. On volume basis, air contains following parts of oxygen
(a) 21 (b) 23
(c) 25 (d) 77
10. The specific heat of air increases with increase in
(a) temperature (b) pressure
(c) density (d) none of the above

11. For reversible adiabatic process, change in entropy is

- (a) maximum (b) minimum
(c) zero (d) none of the above

12. Which of the following parameters remains constant during ideal throttling process?

- (a) Pressure (b) Temperature
(c) Enthalpy (d) Entropy

13. If H be the heat supplied to a system to do work W with change in internal energy of ΔW , then

- (a) $H = \Delta W + W$ (b) $\Delta W = H + W$
(c) $W = H + \Delta W$ (d) $H = \Delta W - W$

14. In a Carnot cycle, heat is transferred at

- (a) constant temperature (b) constant volume
(c) constant pressure (d) constant enthalpy

15. Efficiency of a Carnot engine with $t_1 = 200^\circ\text{C}$, $t_2 = 30^\circ\text{C}$, is

- (a) 85% (b) 36%
(c) 63% (d) 58%

16. One barometric pressure or one atmospheric pressure is equal to

- (a) 1.033 Kgf/cm² (b) 1.033 Kgf/mm²
(c) 1 Kgf/cm² (d) 100 Kgf/cm²

17. Kelvin Planck's law deals with

- (a) conservation of heat (b) conservation of work
(c) conversion of heat into work (d) conversion of work into heat

18. Thermal power plant works on

- (a) Rankine cycle (b) Otto cycle
(c) Brayton cycle (d) Carnot cycle

19. Which of the following cycles is not a reversible cycle?

- (a) Ericsson (b) Stirling
(c) Carnot (d) none of the above

20. Air standard efficiency of a diesel cycle is dependent upon

- (a) cut off ratio (b) ratio of specific heats
(c) adiabatic compression ratio (d) all of the above

21. A process which undergoes energy loss due to friction is called
- (a) irreversible (b) reversible
(c) adiabatic (d) isentropic
22. Which of the following is not an extensive property?
- (a) Entropy (b) Enthalpy
(c) Internal energy (d) Density
23. Triple point of a pure substance on P-V diagram is represented by a
- (a) point (b) curve
(c) line (d) triangle
24. The process of sublimation is found to occur in
- (a) liquid Nitrogen (b) solid CO₂
(c) steel (d) air
25. 1 Kg of carbon produces following quantity of CO₂
- (a) $\frac{8}{3}$ Kg (b) $\frac{3}{11}$ Kg
(c) $\frac{11}{3}$ Kg (d) $\frac{3}{7}$ Kg
26. Specific fuel consumption is defined as
- (a) fuel consumption per hour (b) fuel consumption per BHP
(c) fuel consumption per hour per BHP .. (d) none of the above
27. In a diesel engine, the fuel is ignited by
- (a) spark (b) injected fuel
(c) combustion chamber (d) none of the above
28. The air standard efficiency of an Otto cycle compared to diesel cycle for the given compression ratio is
- (a) same (b) more
(c) less (d) none of the above
29. if the intake air temperature of I.C. engine increases, its efficiency will
- (a) increase (b) remain same
(c) decrease (d) none of the above

30. Which of the following is not an internal combustion engine?

- (a) Diesel engine (b) Steam turbine
(c) 4-stroke petrol engine (d) none of the above

31. A 75cc engine has the following parameters as 75cc

- (a) swept volume (b) clearance volume
(c) cylinder volume (d) none of the above

32. In diesel engine, the compression ratio in comparison to expansion ratio is

- (a) same (b) less
(c) more (d) none of the above

33. Ignition quality of petrol is expressed by

- (a) cetane number (b) octane number
(c) calorific value (d) none of the above

34. Iso-octane has octane number of

- (a) zero (b) 50
(c) 75 (d) 100

35. The top piston ring nearer to the piston crown is known as

- (a) compression ring (b) oil ring
(c) groove ring (d) leading ring

36. A fuel will detonate less if it has

- (a) higher self ignition temperature (b) lower self ignition temperature
(c) zero self ignition temperature (d) none of the above

37. Calorific value of diesel oil is of the order of

- (a) 3000 KCal/Kg (b) 5000 KCal/Kg
(c) 10000 KCal/Kg (d) 15000 KCal/Kg

38. The firing order in a six stroke I.C. engine is

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

39. The thermal efficiency of a two cycle engine as compared to four cycle engine is

- (a) more (b) less
(c) same (d) none of the above

40. The brake mean effective pressure of an I.C. engine with increase in speed will
- (a) increase (b) decrease
(c) remain unaffected (d) none of the above
41. Vapour compression refrigeration is somewhat like
- (a) Carnot cycle (b) Rankine cycle
(c) Reversed Rankine cycle (d) none of the above
42. Which of the following cycles uses air as the refrigerant?
- (a) Ericsson (b) Bell-Coleman
(c) Carnot (d) Stirling
43. The relative coefficient of performance is
- (a) Actual COP/Theoretical COP (b) Theoretical COP/Actual COP
(c) Actual COP \times Theoretical COP (d) none of the above
44. One ton of refrigeration is equal to the refrigeration effect corresponding to melting of 1000 Kg of ice in
- (a) 24 hours (b) 12 hours
(c) 8 hours (d) 10 hours
45. One ton refrigeration corresponds to
- (a) 50 KCal/hr (b) 50 KCal/min
(c) 50 KCal/sec (d) 100 KCal/min
46. The moisture in a refrigerant is removed by
- (a) evaporator (b) dehumidifier
(c) driers (d) expansion valve
47. Critical pressure of a liquid is the pressure
- (a) above which liquid will remain liquid . (b) above which liquid becomes gas
(c) above which liquid becomes vapour .. (d) none of the above
48. The refrigerant for a refrigerator should have
- (a) high latent heat (b) high sensible heat
(c) low latent heat (d) low sensible heat
49. Air refrigeration operates on
- (a) Carnot cycle (b) Rankine cycle
(c) Brayton cycle (d) Stirling cycle

50. Absorption system normally uses the following refrigerant

- | | | | |
|--------------------|--------------------------|-----------------------------|--------------------------|
| (a) Freon-11 | <input type="checkbox"/> | (b) Freon-12 | <input type="checkbox"/> |
| (c) Ammonia | <input type="checkbox"/> | (d) none of the above | <input type="checkbox"/> |

51. The value of COP in vapour compression cycle is usually always

- | | | | |
|---------------------------|--------------------------|-----------------------------|--------------------------|
| (a) less than unity | <input type="checkbox"/> | (b) more than unity | <input type="checkbox"/> |
| (c) equal to unity | <input type="checkbox"/> | (d) none of the above | <input type="checkbox"/> |

52. If a heat pump cycle operates between the condenser temperature of 27°C and evaporation temperature of -23°C, then the Carnot COP will be

- | | | | |
|---------------|--------------------------|---------------|--------------------------|
| (a) 0.2 | <input type="checkbox"/> | (b) 1.2 | <input type="checkbox"/> |
| (c) 10 | <input type="checkbox"/> | (d) 5 | <input type="checkbox"/> |

53. Superheating in a refrigeration cycle

- | | | | |
|---------------------------------|--------------------------|-----------------------------|--------------------------|
| (a) increases COP | <input type="checkbox"/> | (b) decreases COP | <input type="checkbox"/> |
| (c) COP remains unchanged | <input type="checkbox"/> | (d) none of the above | <input type="checkbox"/> |

54. Which of the following refrigerants has lowest freezing point?

- | | | | |
|--------------------|--------------------------|---------------------------|--------------------------|
| (a) Freon-12 | <input type="checkbox"/> | (b) Freon-11 | <input type="checkbox"/> |
| (c) Freon-22 | <input type="checkbox"/> | (d) NH ₃ | <input type="checkbox"/> |

55. Lithium bromide in vapour absorption refrigeration system is used as

- | | | | |
|-----------------------|--------------------------|-----------------------------|--------------------------|
| (a) refrigerant | <input type="checkbox"/> | (b) cooling substance | <input type="checkbox"/> |
| (c) lubricant | <input type="checkbox"/> | (d) absorbent | <input type="checkbox"/> |

56. In electrolux refrigerator ammonia

- | | | | |
|-----------------------------------|--------------------------|--------------------------------|--------------------------|
| (a) evaporates in hydrogen | <input type="checkbox"/> | (b) is absorbed in water | <input type="checkbox"/> |
| (c) is absorbed in hydrogen | <input type="checkbox"/> | (d) evaporates in water | <input type="checkbox"/> |

57. Air conditioning is concerned with maintaining

- | | | | |
|-----------------------|--------------------------|----------------------------|--------------------------|
| (a) temperature | <input type="checkbox"/> | (b) humidity | <input type="checkbox"/> |
| (c) cleanliness | <input type="checkbox"/> | (d) all of the above | <input type="checkbox"/> |

58. As warm air cools, its relative humidity

- | | | | |
|----------------------------|--------------------------|-----------------------------|--------------------------|
| (a) increases | <input type="checkbox"/> | (b) decreases | <input type="checkbox"/> |
| (c) remains constant | <input type="checkbox"/> | (d) none of the above | <input type="checkbox"/> |

59. Dew point is

- (a) the temperature at which condensation of steam in saturated air will start.....
- (b) the lowest attainable temperature for a mixture of air and steam
- (c) dependent on pressure of air
- (d) none of the above

60. For unsaturated air, wet bulb temperature is

- (a) less than dry bulb temperature
- (b) less than dew point
- (c) more than dew point
- (d) equal to dew point

61. As relative humidity decreases, the dew point will be

- (a) lower than wet bulb temperature
- (b) higher than wet bulb temperature
- (c) equal to wet bulb temperature
- (d) none of the above

62. Air is dehumidified by

- (a) heating
- (b) cooling
- (c) chemical absorption
- (d) cooling and chemical absorption

63. For completely dry air, total heat is

- (a) sum of latent heat and sensible heat ...
- (b) same as latent heat
- (c) same as sensible heat
- (d) none of the above

64. On psychrometric chart, dry bulb temperature lines are

- (a) horizontal
- (b) vertical
- (c) curved
- (d) none of the above

65. On psychrometric chart, dew point temperature lines are

- (a) horizontal
- (b) vertical
- (c) curved
- (d) none of the above

66. On psychrometric chart, wet bulb temperature lines are

- (a) horizontal
- (b) vertical
- (c) curved
- (d) none of the above

67. if air is heated without changing its moisture content, the dew point will

- (a) increase
- (b) decrease
- (c) remain same
- (d) none of the above

68. Sensible heating or cooling process on psychrometric chart is represented by

- (a) vertical line (b) horizontal line
(c) inclined line (d) none of the above

69. In humidification process, relative humidity

- (a) increases (b) decreases
(c) remains same (d) none of the above

70. During evaporative cooling process, the wet bulb temperature

- (a) increases (b) decreases
(c) remains constant (d) none of the above

71. Unit of thermal conductivity in S.I. unit is

- (a) Joule/m²-sec (b) Watt/m^oK
(c) Watt/m^oC (d) Watt/m²-sec

72. Heat transfer in liquid and gases takes place by

- (a) conduction (b) convection
(c) radiation (d) none of the above

73. The concept of overall coefficient of heat transfer is used in heat transfer problems of

- (a) conduction (b) convection
(c) radiation (d) conduction and convection

74. Thermal diffusivity of a substance is

- (a) proportional to thermal conductivity
(b) inversely proportional to thermal conductivity
(c) proportional to (thermal conductivity)²
(d) inversely proportional to (thermal conductivity)²

75. Log mean temperature difference in case of counter flow compared to parallel flow will be

- (a) same (b) more
(c) less (d) none of the above

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

- (a) Reynolds number (b) Froude number
(c) Mach number (d) Euler number

77. Reynolds number is the ratio of inertia force to
- (a) pressure force (b) gravity force
(c) viscous force (d) elastic force
78. The product of mass and acceleration of flowing fluid is called
- (a) inertia force (b) viscous force
(c) gravity force (d) pressure force
79. Whenever a plate is held immersed at some angle with the direction of flow of fluid, it is subjected to some pressure. The component of this pressure, perpendicular to the direction of flow is called
- (a) lift (b) drag
(c) stagnation process (d) bulk modulus
80. A flow is called subsonic if Mach number is
- (a) less than one (b) equal to one
(c) greater than one (d) zero
81. The loss of pressure head in case of laminar flow is proportional to
- (a) velocity (b) (velocity)²
(c) (velocity)^{2.5} (d) (velocity)³
82. A flow in which viscosity of fluid is dominant over inertia force is called
- (a) steady flow (b) laminar flow
(c) turbulent flow (d) none of the above
83. Water is a/an
- (a) ideal fluid (b) Newtonian fluid
(c) non-Newtonian fluid (d) none of the above
84. The unit of kinematic viscosity in S.I. unit is
- (a) N-m/sec (b) N-sec/m
(c) N-sec/m² (d) m²/sec
85. One poise is equal to
- (a) 0.1 N-sec/m² (b) 1 N-sec/m²
(c) 10 N-sec/m² (d) 100 N-sec/m²
86. The discharge in an open channel corresponding to critical depth is
- (a) zero (b) minimum
(c) maximum (d) none of the above

87. The total energy line lies over the hydraulic gradient line by an amount equal to the
(a) pressure head (b) velocity head
(c) pressure head plus velocity head (d) pressure head minus velocity head
88. For a flowing fluid, venturimeter is used to measure
(a) pressure (b) velocity
(c) discharge (d) none of the above
89. A body floating in a liquid is said to be in neutral equilibrium, if its metacentre
(a) coincides with its centre of gravity (b) lies above its centre of gravity
(c) lies below its centre of gravity (d) none of the above
90. The point at which the resultant pressure on an immersed surface acts is known as
(a) centre of pressure (b) centre of gravity
(c) centre of depth (d) none of the above
91. When venturimeter is inclined, then for a given flow it will show
(a) less reading (b) more reading
(c) same reading (d) inaccurate reading
92. Rotameter is used to measure
(a) viscosity (b) pressure
(c) velocity (d) rotation
93. Bluff body is the body of such a shape that pressure drag as compared to friction drag is
(a) same (b) more
(c) less (d) none of the above
94. Equation of continuity results from the principle of conservation of
(a) energy (b) mass
(c) momentum (d) none of the above
95. 10 m of water column is equal to
(a) 10 KN/m² (b) 1 KN/m²
(c) 100 KN/m² (d) 1000 KN/m²

96. As pump speed increases, its net positive suction head (NPSH) requirement

- (a) increases
- (b) decreases
- (c) remains constant
- (d) may increase or decrease depending on other considerations

97. When a fluid flows in concentric circles, it is known as

- (a) free circular motion
- (b) free rotational motion
- (c) radial flow
- (d) free cylindrical vortex flow

98. An ideal fluid is

- (a) similar to perfect gas
- (b) frictionless and incompressible
- (c) incompressible
- (d) none of the above

99. The velocity distribution in the laminar boundary layer follows

- (a) parabolic law
- (b) logarithmic law
- (c) straight line law
- (d) hyperbolic law

100. The velocity distribution in the turbulent boundary layer follows

- (a) parabolic law
- (b) logarithmic law
- (c) straight line law
- (d) hyperbolic law

101. Property of a fluid by which its own molecules are attracted is called

- (a) adhesion
- (b) cohesion
- (c) surface tension
- (d) compressibility

102. Mercury does not wet glass. This is due to property of liquid known as

- (a) adhesion
- (b) cohesion
- (c) surface tension
- (d) compressibility

103. Specific weight of water in S.I. units is equal to

- (a) 1000 N/m^3
- (b) $9.81 \times 10^3 \text{ N/m}^3$
- (c) $9.81 \times 10^3 \text{ N/cm}^2$
- (d) 1000 N/cm^2

104. The bulk modulus of elasticity with increase in pressure

- (a) increases
- (b) decreases
- (c) remains constant
- (d) none of the above

105. A balloon lifting in air follows the

- (a) law of gravitation (b) principle of buoyancy
(c) Archimedes principle (d) all of the above

106. If mercury in a barometer is replaced by water, the height of 3.75 cm of mercury will be equal to

- (a) 51 cm of water (b) 50 cm of water
(c) 52 cm of water (d) none of the above

107. Falling drops of water become spheres due to the property of

- (a) adhesion (b) cohesion
(c) surface tension (d) viscosity

108. Newton's law of viscosity is a relationship between

- (a) shear stress and rate of angular deformation
(b) shear stress and pressure
(c) shear stress and viscosity
(d) none of the above

109. Which of the following is/are used to measure flow on the application of Bernoulli's theorem?

- (a) Venturimeter (b) Orificemeter
(c) Pitot tube (d) all of the above

110. The two most important forces for a floating body are

- (a) buoyancy and gravity (b) buoyancy and pressure
(c) buoyancy and inertia (d) none of the above

111. For starting an axial flow pump, its delivery valve should be

- (a) closed (b) open
(c) partly open and partly closed (d) none of the above

112. One horse power is equal to

- (a) 75 watts (b) 735 watts
(c) 760 watts (d) 360 watts

113. Multistage centrifugal pumps are used to obtain

- (a) high discharge (b) high head
(c) high efficiency (d) none of the above

114. Discharge of a centrifugal pump is proportional to

- (a) impeller diameter (b) (impeller diameter)²
(c) (impeller diameter)³ (d) (impeller diameter)^{1/2}

115. Power required to drive a centrifugal pump is proportional to

- (a) impeller diameter (b) (impeller diameter)²
(c) (impeller diameter)³ (d) (impeller diameter)⁴

116. Low specific speed of a pump implies it is a/an

- (a) centrifugal pump (b) axial flow pump
(c) mixed flow pump (d) none of the above

117. Low specific speed of a turbine implies it is a/an

- (a) propeller turbine (b) Francis turbine
(c) impulse turbine (d) none of the above

118. High specific speed of a turbine implies it is a/an

- (a) propeller turbine (b) Francis turbine
(c) impulse turbine (d) none of the above

119. Impulse turbine is used for

- (a) low head (b) high head
(c) medium head (d) none of the above

120. In a reaction turbine, draft tube is used to

- (a) transport water downstream without eddies
(b) convert kinematic energy to flow energy by a gradual expansion of
the flow cross-section
(c) increase flow rate
(d) decrease flow rate

121. In axial flow fans and turbines, fluid enters and leaves as follows

- (a) axially and radially (b) radially and axially
(c) axially and axially (d) none of the above

122. Which of the following is not a rotary pump?

- (a) Gear pump (b) Vane pump
(c) Screw pump (d) Axial pump

123. Air vessels in reciprocating pump are used to

- (a) reduce acceleration to minimum (b) increase pump efficiency
(c) decrease pump efficiency (d) save pump from cavitation

124. The ratio of maximum load to rated plant capacity is known as

- (a) load factor (b) capacity factor
(c) utilization factor (d) none of the above

125. Capacity of a hydro electric plant in service in excess of the peak load is known as

- (a) opening reserve (b) spinning reserve
(c) cold reserve (d) hot reserve

126. If a steam sample is nearly in dry condition, then its dryness fraction can be most accurately determined by

- (a) throttling calorimeter (b) separating calorimeter
(c) bucket calorimeter (d) none of the above

127. On Mollier chart, flow through turbine is represented by

- (a) horizontal straight line (b) vertical straight line
(c) inclined line (d) curved line

128. An ideal regenerative cycle is

- (a) equal to Carnot cycle (b) less than Carnot cycle
(c) more than Carnot cycle (d) none of the above

129. Cochran boiler is a

- (a) horizontal fire-tube boiler (b) horizontal water-tube boiler
(c) vertical fire tube boiler (d) vertical water tube boiler

130. Which of the following gases has the highest calorific value?

- (a) Producer gas (b) Coal gas
(c) Coke oven gas (d) Blast furnace gas

131. The number of flue tubes in Lancashire boiler is

- (a) one (b) two
(c) three (d) four

132. Which of the following is a fire tube boiler?

- (a) Locomotive boiler (b) Stirling boiler
(c) Babcock and Wilcox boiler (d) none of the above

133. In Parson's reaction turbine

- (a) there are no fixed blades
- (b) there are no moving blades
- (c) moving blades are bigger than fixed blades
- (d) both fixed and moving blades are identical

134. The vacuum obtainable in a condenser is dependent upon

- (a) capacity of ejector
- (b) temperature of cooling water
- (c) quantity of steam to be handled
- (d) none of the above

135. In a convergent-divergent nozzle, the mass flow rate remains constant if the ratio of exit and inlet pressures is

- (a) less than critical pressure ratio
- (b) equal to critical pressure ratio
- (c) more than critical pressure ratio
- (d) none of the above

136. For critical pressure ratio, the discharge through a nozzle is

- (a) maximum
- (b) minimum
- (c) zero
- (d) none of the above

137. The flow of steam in a nozzle is subsonic at

- (a) throat
- (b) entrance
- (c) convergent portion
- (d) divergent portion

138. Shock effect in a nozzle is felt in

- (a) divergent portion
- (b) convergent portion
- (c) throat
- (d) none of the above

139. Isothermal compression efficiency can be obtained by running the compressor

- (a) at very high speed
- (b) at very low speed
- (c) at zero speed
- (d) none of the above

140. The compressor capacity with decrease in suction temperature

- (a) increases
- (b) decreases
- (c) remains constant
- (d) none of the above

141. The efficiency of a jet engine is

- (a) higher at ground
- (b) higher at high altitude
- (c) same at all altitudes
- (d) none of the above

142. Pressure ratio in gas turbine is the ratio of

- (a) compressor pressure to exhaust pressure
- (b) inlet pressure to exhaust pressure
- (c) highest pressure to exhaust pressure
- (d) none of the above

143. Intercooling in gas turbine results in

- (a) improved work ratio
- (b) lower work ratio
- (c) work ratio remains unaffected
- (d) none of the above

144. The blades of a gas turbine are made of

- (a) mild steel
- (b) stainless steel
- (c) high nickel alloy
- (d) none of the above

145. Losses in a centrifugal compressor are due to

- (a) inlet losses
- (b) diffuser losses
- (c) impeller channel losses
- (d) all of the above

146. The capacity of a compressor will be highest when its intake temperature is

- (a) lowest
- (b) highest
- (c) atmospheric
- (d) none of the above

147. Separators in compressor installations are located

- (a) before intercooler
- (b) before receiver
- (c) after receiver
- (d) none of the above

148. Cylinder clearance in a clearance should be

- (a) as large as possible
- (b) as small as possible
- (c) 50% of swept volume
- (d) 75% of swept volume

149. ratio of indicated H.P. and brake H.P. is known as

- (a) mechanical efficiency
- (b) volumetric efficiency
- (c) isothermal efficiency
- (d) none of the above

150. Calorie is a measure of

- (a) specific heat
- (b) quantity of heat
- (c) entropy
- (d) work