Maximum : 100 marks

Time : 1 hour and 15 minutes

1. In S.I. units Joule is expressed as :
   (A) Nm/s (B) Nm
   (C) Nm^2 (D) mN

2. Modulus of rigidity is experimentally the ratio of :
   (A) Linear stress to longitudinal strain
   (B) Hydrostatic stress to volumetric strain
   (C) Axial stress to lateral strain
   (D) Shear stress to shear strain

3. The definition of Specific fuel consumption is :
   (A) Fuel consumption per BHP (B) Fuel consumption for hour
   (C) Fuel consumption per hour per BHP (D) Fuel consumption per IHP

4. The longitudinal (axial) stress for a thin cylinder of mean radius r, wall thickness t and subjected to an internal fluid pressure p, would be :
   (A) pr/4t (B) 2pr/t
   (C) pr/t (D) pr/2t

5. The height of water column corresponding to a pressure of 54 KN/m^2 is :
   (A) 5.5 m (B) 8.5 m
   (C) 11.0 m (D) 4.5 m

6. The ratio of the capacity of a compressor to the piston displacement of the compressor is known as :
   (A) Volumetric efficiency (B) Theoretical horsepower
   (C) Compressor efficiency (D) Brake horse power

7. The use of cupola is to make :
   (A) Wrought Iron (B) Pig Iron
   (C) Steel (D) Cast Iron

8. The process used in summer air conditioning is known as :

(A) Humidification
(B) Heating and humidification
(C) De humidification
(D) Cooling and dehumidification

9. Temperature of human body is 94.2°F. Its corresponding temperature in celsius scale is :

(A) 73.78°c
(B) 34.56°c
(C) 371.4°c
(D) 110.67°c

10. In the cast Iron the percentage of carbon usually varies between :

(A) 0.5 to 1.0%
(B) 0.1 to 0.2%
(C) 1.0 to 1.5%
(D) 2.5 to 3.5%

11. The ratio of total emissive power of a body to the total emissive power of a black body is called :

(A) Reflectivity
(B) Absorptivity
(C) Transmitivity
(D) Emissivity

12. Factor of safety is defined as the ratio of :

(A) Endurance limit to yield stress
(B) Elastic limit to ultimate stress
(C) Yield stress to working stress
(D) Breaking stress to working stress

13. A simply supported beam of span (l) carries a uniformly distributed load over the whole span. The shear force diagram will be :

(A) a rectangle
(B) a triangle
(C) two equal and opposite triangles
(D) two equal and opposite rectangles

14. When a shaft of diameter d is subjected to torsional load T, the maximum shear stress fs, induced in the shaft is given by the relation :

(A) $fs = \frac{64T}{\pi d^3}$
(B) $\frac{16T}{\pi d^3}$
(C) $fs = \frac{8T}{\pi d^3}$
(D) $\frac{32T}{\pi d^3}$

15. The torsion equation is given by :

(A) $T/J = fs/R = C\theta/L$
(B) $T/fs = R/J = C\theta/L$
(C) $T/R = fs/J = C\theta/L$
(D) $T/J = fs = R = L/C\theta$