1. Maximum bending movement for a simply supported beam of length L, cross section A carrying uniformly distributed total load of W is _____

   (1) $\dfrac{LW}{2}$

   (2) $\dfrac{LW}{4}$

   (3) $\dfrac{LW}{8}$

   (4) $\dfrac{LW}{16}$

2. In case of a thin longitudinal cylinder the ratio $= \dfrac{\text{hoop stress}}{\text{Longitudinal stress}}$ will be

   (1) 1

   (2) 2

   (3) $\dfrac{1}{2}$

   (4) $\dfrac{1}{3}$

3. Iron alloyed with more than 2% carbon content is called _____.

   (1) Grey Iron
   (2) Cast Iron
   (3) Carbon Steel
   (4) High carbon steel

4. Microscopic examinations have revealed that chips are produced by shearing process along the _____.

   (1) Longitudinal plane
   (2) Tangential plane
   (3) Shear plane
   (4) Principal plane

5. Materials system composed of a combination of two or more constituent that differs in form and chemical compositions and which are insoluble in each other is _____

(1) Alloy
(2) Compound
(3) Composites
(4) Carburizing

6. Kinematic pair consists of _____

(1) Pair of element having surface element.
(2) Pair of element having line or point contact.
(3) Two elements that permit relative motion.
(4) Two elements dynamically held together.

7. The Hartnell Governor is the best example for the _____

(1) Centrifugal type governor
(2) Dead weight type governor
(3) Inertia type governor
(4) Pendulum type governor

8. An ideal flow of any fluid must satisfy _____

(1) Newton law of Viscosity
(2) Boundary layer theory
(3) Pascals Law
(4) Continuity equation

9. In case of laminar flow _____

(1) Reynold number is high
(2) The fluid particles move in Zig - Zag manner
(3) The fluid particles move in layers parallel to boundary
(4) Both Reynold and Nusselt number is high

10. A ball pen works on the principle of _____

    (1) Adhesion and Cohesion of the molecules
    (2) Surface tension
    (3) Viscosity
    (4) Gravitational Force

11. In air standard diesel cycle, at fixed compression ratio and fixed value of adiabatic index.

    (1) Thermal efficiency increases with increase in heat addition cut . off ratio.
    (2) Thermal efficiency decreases with increase in heat addition cut . off ratio.
    (3) Thermal efficiency remains same with increase in heat addition cut . off ratio.
    (4) None of the above.

12. Prony brake is used for the measurements of brake power of a _____

    (1) Low speed engine
    (2) Low power engine
    (3) Variable speed engine
    (4) High speed engine

13. The phenomenon by which the fuel catches fire without external flame is called as _____

    (1) Detonation
    (2) Pre-ignition
    (3) Knocking
    (4) Auto-ignition

14. The car batteries generally used in our country are of the type _____

    (1) Nickel cadmium battery
    (2) Lead . acid battery
    (3) Nickel iron battery
    (4) Dry battery

15. The most commonly used lubricant in India for automobiles is _____

   (1) Animal oil
   (2) Mineral oil
   (3) Vegetable oil
   (4) Synthetic oil

16. _____ is used to control the output of the generator within the safe limits, to prevent or to increase the life of the battery.

   (1) Transducers
   (2) Sensors
   (3) Regulator
   (4) Generator

17. The percentage reduction of the cross sectional area in a cast iron specimen subjected to tensile test is _____

   (1) 50%
   (2) 25%
   (3) 5%
   (4) 0%

18. Materials having the same elastic properties in all the directions are called as _____

   (1) Elastic materials
   (2) Isotropic materials
   (3) Uniform materials
   (4) Ideal materials

19. The property of materials which allows it to be rolled into plates and sheets is called as _____

   (1) Malleability
   (2) Ductility
   (3) Plasticity
   (4) Elasticity

20. The tendency of a body to resist change from rest or motion is known as _____

(1) Inertia
(2) Mass
(3) Friction
(4) Resisting force

21. The type of coupling suitable when two shafts are not in line and not parallel is _____

(1) Chain Coupling
(2) Universal Coupling
(3) Oldham Coupling
(4) Flexible Coupling

22. Which of the following is not associated with the measurement of viscosity?

(1) Redwood
(2) Engler
(3) Saybolt
(4) Orsat

23. Poise is the unit of _____

(a) Surface tension
(b) Buoyancy
(c) Viscosity
(d) Capillarity

24. Entropy change depends on _____

(1) Heat transfer
(2) Mass transfer
(3) Change in pressure and volume
(4) Change in temperature

25. The ball joints are used on the tie rod ends of a steering because they _____

   (1) Reduce noise
   (2) Reduce sliding resistance
   (3) Help movement of suspension in other directions
   (4) Improve force transmission

26. The stroke of an IC engine is _____

   (1) Distance between TDC & BDC
   (2) Volume of Cylinder
   (3) Length of Cylinder
   (4) Length of Piston

27. Connecting rods are manufactured by _____

   (1) Forging
   (2) Casting
   (3) Welding
   (4) Machining

28. The motion of the Cam Shaft is transferred to the value of engine through _____

   (1) Rocker Arm
   (2) Piston
   (3) Pulley
   (4) Valve Stem

29. The firing order for an in line four cylinder SI engine is _____

   (1) a . b . c . d
   (2) a . b . d . c
   (3) a . c . d . b
   (4) a . c . b . d

30. Approximate value of modulus of elasticity for Mild steel is _____

    (1) 205 GPa
    (2) 100 MPa
    (3) 100 GPa
    (4) 205 MPa

31. Thermal stress is a function of _____

    (1) Temperature change
    (2) Co-efficient of linear expansion
    (3) Youngs modulus
    (4) All of these

32. For maximum power transmission by a belt drive, the maximum tension should
  be _____

    (1) 2/3 Tc
    (2) Tc / 3
    (3) 3Tc
    (4) 2Tc

33. The gases are considered incompressible when Mach number is _____

    (1) 1.0
    (2) 0.5
    (3) > 0.3
    (4) < 0.2

34. The flow in a pipe is laminar if Reynolds number is _____

    (1) 2500
    (2) 4000
    (3) > 2500
    (4) None of these

35. A central load W attached to the sleeve of a watt governor increase the height of governor in the ratio _____

(1) $(W + w) / w$
(2) $w / (W + w)$
(3) Sqrt $\{ (W + w) / w \}$
(4) $2 (W + w) / w$

Where w is the weight of sleeve

36. The cam size depends on _____

(1) Pitch circle
(2) Base circle
(3) The cam circle enclosing the cam profile
(4) Operating speed of the cam

37. A carnot cycle will be 100% efficient if _____

(1) The engine is made to run as infinitely high speeds
(2) The working fluid is a pure substance
(3) The source and sink temperature are 500^0C and 0^0C respectively
(4) The rejection of heat is at 0^0K temperature, whatever may be the temperature of source.

38. Maximum deflection of simply supported beam with central point load is _____

(1) $Wl^3 / 4EI$
(2) $Wl^3 / 8EI$
(3) $Wl^3 / 24EI$
(4) $Wl^3 / 48EI$

39. The ratio of the collapse load to the working load defined as _____

(1) Yield factor
(2) Load factor
(3) Factor of safety
(4) Shape factor

40. Auto mobile connecting rods mass produced by _____

(1) Sand casting
(2) Die casting
(3) Forging
(4) Cold heading

41. Minimum number teeth is to avoid _____

(1) Impact load
(2) Wear
(3) Interference
(4) Under cut

42. The sparking voltage of the spark plug in petrol engine is _____

(1) 500 to 1000 volt
(2) 1000 to 5000 volt
(3) 5000 to 8000 volt
(4) 10000 to 15000 volt

43. A cantilever of length (L) carries a point load (W) at the free end. The bending moment diagram will be a _____

(1) Parabola with maximum ordinate at the centre of the beam.
(2) Parabola with maximum ordinate at the cantilever end.
(3) Triangle with maximum ordinate at the free end.
(4) Triangle with maximum ordinate at the cantilever end.

44. A boring tool used for boring a hole over a large length should have _____

(1) One tool bit on a bar
(2) Two tool bits on fitted on diametrically opposite side.
(3) Four tool bits
(4) Three tool bits

45. The ratio of thrust force to cutting force is normally 2.5 in _____

    (1) Turning
    (2) Broaching
    (3) Grinding
    (4) Plain Milling

46. Which of the following pairs are not correctly matched ?

    (1) Positive drive   -   Belt drive
    (2) High velocity ratio - Worm gearing
    (3) To connect non parallel & non intersecting shaft - spiral gearing
    (4) Diminished noise & smooth operation - Helical gear

47. The following is the most inappropriate method for evaluation of the orifice
    coefficient stated _____

    (1) Time of emptying method for finding Cd
    (2) Jet trajectory method for finding Cv
    (3) Momentum method for finding Cc
    (4) Pitot tube method for finding Cd

48. If Cp is the specific heat at constant pressure and Cv is the specific heat at
    constant volume for air, then _____

    (1) Cp < Cv
    (2) Cp = Cv
    (3) Cp > Cv
    (4) There is no such relation

49. The knocking tendency in CI engine increases with _____

    (1) Decrease in Compression Ratio
    (2) Increase in Compression Ratio
    (3) Increase the Temperature of inlet air
    (4) Increase cooling water temperature

50. How many cells are used in a 12 volt car battery?

    (1) 2
    (2) 4
    (3) 6
    (4) 8