

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

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

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

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

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

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

(1) 1

(2) 2

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

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

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) Pascal's 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 valve 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) Young's modulus
- (4) All of these

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

- (1)  $\frac{2}{3} T_c$
- (2)  $T_c / 3$
- (3)  $3T_c$
- (4)  $2T_c$

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)  $\text{Sqrt} \{ (W + w) / w \}$
- (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  $500^{\circ}\text{C}$  and  $0^{\circ}\text{C}$  respectively
- (4) The rejection of heat is at  $0^{\circ}\text{K}$  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  $C_d$
  - (2) Jet trajectory method for finding  $C_v$
  - (3) Momentum method for finding  $C_c$
  - (4) Pitot tube method for finding  $C_d$
48. If  $C_p$  is the specific heat at constant pressure and  $C_v$  is the specific heat at constant volume for air, then \_\_\_\_\_
- (1)  $C_p < C_v$
  - (2)  $C_p = C_v$
  - (3)  $C_p > C_v$
  - (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