

1. Compression ratio for diesel engine may have a range of

- a) 8 to 10 b) 16 to 20
c) 10 to 15 d) None of these

Ans: b

2. The two stroke cycle engine has

- a) one suction valve and one exhaust valve operated by one can
b) one suction valve and one exhaust valve
c) only ports covered and uncovered by piston to effect charging and exhausting
d) none of the above

Ans: c

3. Morse test is used for multi-cylinder spark ignition engine to determine

- a) Thermal efficiency
b) Mechanical efficiency
c) Volumetric efficiency
d) Relative efficiency

Ans: b

4. Characteristic equation of gas is given by (V = specific volume; m = mass of gas)

- a) $pV = RT$ b) $pV = mRT$
c) $pV^n = C$ d) $pV^\gamma = C$

Ans: b

5. Dryness fraction of steam is defined as:

- a) $\frac{\text{mass of dry steam}}{\text{mass of water vapour in suspension}}$
b) $\frac{\text{mass of water vapour in suspension}}{\text{mass of dry steam}}$
c) $\frac{\text{mass of dry steam}}{\text{mass of dry + mass of water vapour in suspension}}$
d) $\frac{\text{mass of water vapour in suspension}}{\text{mass of water vapour in suspension + mass of dry steam}}$

Ans: c

6. Lancashire Boiler is a

- a) Water tube boiler
b) Fire tube boiler
c) Locomotive boiler
d) High pressure boiler

Ans: b

7. Rankine's theory is valid to

- a) long column
b) short column
c) both a) and b)
d) none of the above

Ans: c

8. Poisson's ratio is used in

- a) one-dimensional body
b) two-dimensional body
c) three-dimensional body
d) both two and three dimensional body

Ans: d

9. Constant efficiency curves of turbines are drawn between (on both axes)

- a) power and speed
b) efficiency and speed
c) efficiency and power
d) efficiency and head

Ans: b

10. Specific speed of a centrifugal pump is defined as the speed at which the pump would deliver

- a) 1 HP
b) 1 kW
c) $1\text{m}^3/\text{sec}$
d) 1000 kg/sec under 1 meter of head

Ans: c

11. The crippling load for both ends fixed long column is given by

- a) $\frac{\pi^2 EI}{l^2}$ b) $\frac{\pi^2 EI}{4l^2}$
c) $\frac{4\pi^2 EI}{l^2}$ d) $\frac{2\pi^2 EI}{l^2}$

Ans: c

12. Uniform sand hardness is obtained throughout the mould by which of the following moulding machines?

- a) Diaphragm moulding
b) Stripper plate
c) Sand slinger
d) Squeezing

Ans: a

13. The main advantage of shell moulding is that

- a) a metallic pattern is used
b) the moulds are stronger
c) thin sections can be easily obtained

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- d) high production rate is possible
Ans: c
14. Reaming is the operation of
a) enlarging the end of a hole cylindrically
b) cone shaped enlargement of the end of a hole
c) smoothing and squaring the surface around a hole
d) sizing and finishing a hole
Ans: d
15. Zeroth law of thermodynamics defines
a) internal energy b) enthalpy
c) temperature d) pressure
Ans: c
16. The material used for coating the electrode is called
a) protective layer b) binder
c) slag d) flux
Ans: d
17. Which of the following welding processes uses non-consumable electrode?
a) Laser welding b) MIG welding
c) TIG welding d) Ion beam welding
Ans: c
18. In sand moulding, the bottommost part of the flask is called
a) cope b) cheek
c) drag d) flask bottom
Ans: c
19. In order to ram the sand softer on the pattern face and harder at the back of the mould, which of the following types of moulding machines is used?
a) Jolt b) Sand slinger
c) Squeezing d) Stripper plate
Ans: c
20. As per Law of fluid friction for steady streamline flow, the frictional resistance
a) varies proportionally to pressure
b) varies in inverse proportion to pressure
c) does not depend on pressure
d) first increase then decreases
Ans: a
21. Which one of the following assumptions of Bernoulli's theorem is not correct?
a) Flow should not be unsteady
b) Flow should be continuous
c) The fluid should be compressible
d) Flow should be frictionless
Ans: c
22. What will be the maximum hydraulic efficiency in case of direct impact of a jet on a series of flat vanes mounted on the periphery of a large wheel?
a) 33% b) 50% c) 66%
d) Cannot be a fixed value
Ans: b
23. For diesel enging, the method of governing employed is
a) Quality governing
b) Quantity governing
c) Hit and miss governing
d) None of the above
Ans: a
24. Francis Turbine is a
a) Axial flow turbine
b) Radial flow turbine
c) Impulse turbine
d) Outward flow turbine
Ans: b
25. In laminar, incompressible flow in a circular pipe, the ratio between average velocity and maximum velocity would be
a) $-\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{\sqrt{2}}$
Ans: a
26. The product of module and diametral pitch is equal to
a) 1.0 b) $\frac{\pi}{2}$ c) π d) 2π
Ans: a
27. The path of contact in Cycloidal gear is
a) straight line b) curved line
c) circle d) none of the above
Ans: a
28. Which one of the following is a gravity controlled type governor?
a) Hartnell governor
b) Hartung governor
c) Watt governor
d) Pickering governor

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Ans: c

29. The friction torque, transmitted in case of flat pivot bearing for uniform ratio of wear is equal to

- a) μWR b) $\frac{2}{3}\mu WR$
 c) $\frac{1}{3}\mu WR$ d) $\frac{1}{2}\mu WR$

Ans: a

30. At the point of contra-flexure

- a) shear force changes its behaviour
 b) bending moment changes its behaviour
 c) shear force is maximum
 d) shear force is minimum

Ans: b

31. Proof resilience in a member is stored strain energy

- a) per unit volume
 b) in whole volume
 c) per unit area
 d) per unit length

Ans: b

32. In double slider crank chain, the number of revolute pairs is/are

- a) 1 b) 2 c) 3 d) 4

Ans: b

33. Oldham's coupling is inversion of

- a) 4-bar chain
 b) 6-bar chain
 c) single slider crank chain
 d) double slider crank chain

Ans: d

34. Motor used for elevators is generally

- a) synchronous motor
 b) universal motor
 c) induction motor
 d) reluctance motor

Ans: c

35. Which of the following is not a welding accessory?

- a) Cable b) Electrode holder
 c) Hand screen d) Gloves

Ans: a

36. The transformer used for AC welding sets is

- a) booster type b) step up type

c) step down type d) equal turn ratio type

Ans: c

37. A relay performs the function of

- a) fault isolation b) fault detection
 c) fault prevention d) all of the above

Ans: b

38. HRC fuse provides best protection against

- a) open circuit b) overload
 c) reverse current d) short circuit

Ans: d

39. The scale of moving iron (M.I.) instrument is

- a) uniform b) cramped
 c) linear d) all of the above

Ans: b

40. The power factor of industrial loads is generally

- a) unity b) lagging
 c) leading d) zero

Ans: b

41. The value of demand factor is

- a) less than one b) greater than one
 c) equal to one d) zero

Ans: a

42. The slip of an induction motor under full load condition is about

- a) 0.1 b) 0.03 c) 0.2 d) 0.8

Ans: b

43. The motor used in ceiling fans is

- a) Resistance split phase motor
 b) Capacitor start motor
 c) Capacitor start capacitor run motor
 d) Slip ring motor

Ans: c

44. A dynamometer type wattmeter responds to the

- a) average value of active power
 b) average value of reactive power
 c) peak value of active power
 d) peak value of reactive power

Ans: a

45. Which of the following meters is an integrating type instrument?

- a) Ammeter b) Voltmeter
 c) Wattmeter d) Energy meter

Ans: d

46. For battery charging, which of the following DC generators is used?

- a) DC series generator
- b) DC shunt generator
- c) Short shunt compound generator
- d) Long shunt compound generator

Ans: b

47. The no load speed of DC series motor is

- a) very small
- b) medium
- c) very high
- d) small

Ans: c

48. A circuit component that opposes the change in circuit voltage is

- a) resistance
- b) capacitance
- c) inductance
- d) all of the above

Ans: b

49. A series resonant circuit implies

- a) zero power factor and maximum current
- b) unity power factor and maximum current
- c) unity power factor and minimum current
- d) zero power factor and minimum current

Ans: b

50. A current $i = (10 + 10 \sin t)$ amperes is passed through moving iron type ammeter. Its reading will be

- a) zero
- b) 10 A
- c) $\sqrt{150}$ A
- d) $\sqrt{2}$ A

Ans: c

51. A DC ammeter has resistance of 0.1Ω and current range is $0 - 100$ A. If the range is to be extended to $0 - 500$ A, then meter requires shunt resistance of

- a) 0.010Ω
- b) 0.011Ω
- c) 0.025Ω
- d) 1.0Ω

Ans: c

52. In which type of welding is a pool of molten metal used?

- a) Electro slag
- b) Submerged arc
- c) MIG
- d) TIG

Ans: a

53. Plan and butt welds may be used on materials upto approximately

- a) 25 mm thick
- b) 40 mm thick
- c) 50 mm thick
- d) 70 mm thick

Ans: a

54. In arc welding, arc is created between the electrode and work by

- a) flow of current
- b) voltage
- c) material thickness
- d) contact resistance

Ans: d

55. Mho relay is used to protect?

- a) long transmission line
- b) medium length line
- c) short length line
- d) all the above

Ans: a

56. For arc heating, the electrodes are made of

- a) copper
- b) aluminium
- c) graphite
- d) ACSR conductor

Ans: c

57. The most common type of three-phase in unsymmetrical fault is

- a) single line to ground
- b) line to line
- c) double line to ground
- d) three line to ground

Ans: a

58. If supply frequency increases, the skin effect is

- a) decreased
- b) increased
- c) remains same
- d) none of these

Ans: b

59. A PN junction is

- a) a rectifier
- b) an amplifier
- c) an insulator
- d) an oscillator

Ans: a

60. Megger is an instrument to measure

- a) very low resistance
- b) insulation resistance
- c) Q of coil
- d) inductance of coil

Ans: b

61. Arc lamp operates at

- a) low lagging power factor
- b) high leading power factor
- c) unity power factor
- d) zero power factor

Ans: a

62. The rotor input when, rotor copper loss in an induction motor is 600 W and slip is 3% is

- a) 18 kW
- b) 200 kW

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- c) 20 kW d) 25 kW

Ans: c

63. Inter poles are meant for

- a) increasing the speed of the motor
b) increasing counter emf
c) strengthening the main field
d) reducing sparking at the commutator

Ans: d

64. The purpose of the conservator in a transformer is

- a) to cool the winding
b) to prevent moisture in the transformer
c) to prevent short circuit of primary and secondary winding
d) to taken up contraction and expansion of oil

Ans: d

65. In case of a power transformer, the no-load current in terms of rated current is

- a) 10 to 20% b) 2 to 6%
c) 15 to 30% d) 30 to 50% and motor

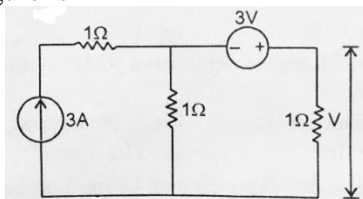
Ans: b

66. If copper loss of transformer at $\frac{7}{8}$ th full load is 4900 W, then its full load copper loss would be

- a) 5600 W b) 6400 W
c) 373 W d) 429 W

Ans: b

67. The value of V in the circuit shown in the given figure is



- a) 1V b) 2V c) 3V d) 4V

Ans: c

68. Two heater rated a 1000W, 250V each are connected in series across a 250V, 50 Hz AC mains. The total power drawn from the supply would be

- a) 1000 watt b) 500 watt
c) 250 watt d) 2000 watt

Ans: b

69. Area of hysteresis loop represents

- a) copper loss b) eddy current loss
c) dielectric loss d) hysteresis loss

Ans: d

70. Two coupled coils with $L_1 = L_2 = 0.6$ have a coupling coefficient of $K = 0.8$. The turn ratio

$$\frac{N_1}{N_2}$$

- a) 4 b) 2 c) 1 d) 0.5

Ans: c

71. The efficiency for maximum power transfer to the load is

- a) 25% b) 50% c) 75% d) 100%

Ans: b

72. In synchronous motor, minimum armature current occurs at

- a) zero power factor
b) leading power factor
c) lagging power factor
d) unity power factor

Ans: d

73. High speed alternators usually have

- a) salient pole rotor
b) cylindrical rotor
c) both salient pole and cylindrical rotor
d) none of the above

Ans: b

74. The field winding of an alternator requires

- a) DC supply b) AC supply
c) Pulsating DC d) Any of the above

Ans: a