1. Density of water is :
   (A) 13.6 (B) 1000 kg/m^3 (C) 100 kg (D) 9.81 N

2. Specific gravity of mercury is :
   (A) 100 N (B) 13.6 (C) 736 (D) 1 N

3. The function of a hydraulic accumulator is :
   (A) To store kinetic energy of working fluid
   (B) To store potential energy of working fluid
   (C) To store pressure energy of working fluid
   (D) To store the solar energy of working fluid

4. Fluid coupling acts as a :
   (A) Clutch (B) Torque converter
   (C) Bearing (D) Shaft coupling

5. A pump is a device which converts :
   (A) Hydraulic energy into mechanical energy
   (B) Electrical energy into mechanical energy
   (C) Mechanical energy into hydraulic energy
   (D) All the above

6. 212°F is equal to :
   (A) 80°C (B) 32°C (C) 0°C (D) 100°C

7. The ratio of limiting force of friction to the normal reaction is known as :
   (A) Coefficient of friction (B) Dynamic friction
   (C) Static friction (D) Kinetic friction

8. The Nucleus of an atom consist of :
   (A) Protons and Electrons (B) Protons, Electrons and Neutrons
   (C) Protons only (D) Protons and Neutrons

9. Atmospheric pressure is measured by using an instrument called :

(A) Altimeter (B) Hydrometer (C) Manometer (D) Barometer

10. Alternating current is converted to direct current by using :

(A) Rectifier (B) Dynamo (C) Transformer (D) Motor

11. The unit power in SI units :

(A) Watts (B) HP (C) Joules (D) Newton

12. The unit "Nano" equals to :

(A) 10^3 (B) 10^{-3} (C) 10^2 (D) 10^{-9}

13. A screw thread is specified by its :

(A) Pitch (B) Major diameter (C) Minor diameter (D) Pitch diameter

14. Proton is a _____.

(A) Neutral particle (B) Positively charged particle

(C) Negatively charged particle (D) Any of the above

15. The density of liquid may be defined as :

(A) $\frac{\text{Mass}}{\text{Volume}}$ (B) $\frac{\text{Weight}}{\text{Volume}}$ (C) $\frac{\text{Volume}}{\text{Weight}}$ (D) $\frac{\text{Volume}}{\text{Mass}}$

16. Vernier callipers can be used to measure up to an accuracy of :

(A) 0.1 mm (B) 0.02 mm (C) 0.002 mm (D) 0.2 mm

17. The volume of a cylinder, height "h" and radius "r" is :

(A) $2 \pi rh$ (B) πr^2h (C) $\frac{1}{2} \pi rh$ (D) $2 \pi r^2h$

18. The kinetic energy (KE) is given by the equation :

(A) $\frac{1}{2}mv^2$ (B) mv^2 (C) mgh (D) $\frac{1}{2}mv$

19. As per trignometric ratio $\tan\theta$ is :

(A) $\frac{\text{Hypotenuse}}{\text{Adjacent side}}$ (B) $\frac{\text{Opposite side}}{\text{Hypotenuse}}$

(C) $\frac{\text{Adjacent side}}{\text{Opposite side}}$ (D) $\frac{\text{Opposite side}}{\text{Adjacent side}}$

20. A washer is generally specified by its :

(A) Hole diameter (B) Outer diameter (C) Mean diameter (D) Thickness

21. In an automatic control system which of the following elements is not used ?

(A) Error detector (B) Final control element

(C) Sensor (D) Oscillator

22. An odometer is used to measure :

(A) Temperature (B) Force

(C) Composition of gas (D) Distance

23. Electronic level contains :

(A) A pendulum (B) Spirit level (C) Micrometer (D) Clinometer

24. What is the function of a feeler gauge ?

(A) To check screw pitch (B) To check surface roughness

(C) To check radius (D) To check the thickness of clearance

25. LVDT is a :

(A) Capacitive transducer (B) Resistive transducer

(C) Inductive transducer (D) None of the above

26. An LVDT has an output in the form of :

(A) Linear displacement of force (B) Pulse

(C) Rotary movement of force (D) Vibration measurement

27. A DC series motor is best suited for driving :

(A) Line starting (blowers and fans) (B) Shear and punches

(C) Machine tools (D) Crane and Hoist

28. The function of a starter in a DC motor is to :

(A) Control its speed

(B) Increase the starting torque

(C) Limit the starting current to a safer value

(D) Reduce the speed

29. The capacity of a battery is expressed in :

(A) Amperes (B) Ampere hours (C) Watts (D) Watt hours

30. The gears which have teeth parallel to the axis of the wheel are known as :

(A) Spur gear (B) Bevel gear (C) Helical gear (D) Spiral gear

31. For a single start thread, lead of the thread is equal to :

(A) Pitch (B) 2 × Pitch (C) Core diameter (D) 3 × Pitch

32. The thread suitable for power transmission is :

(A) Knuckle thread (B) Acme thread (C) Square thread (D) BA thread

33. Value of $1+2+3+\ldots\ldots+20$ is :

(A) 250 (B) 200 (C) 260 (D) 110

34. Due to slip of the belt, the velocity ratio of the belt drive :

(A) Zero (B) Increase (C) Decrease (D) Does not change

35. The Bearing number 300. Series indicates the bearings belongs to :

(A) Light series (B) Heavy series

(C) Extra light series (D) Medium series

36. log (a.b) =

(A) log a − log b (B) log a + log b (C) log a (D) None of these

37. The carbon content in steel is :

(A) Above 2% (B) upto 2% (C) Below 0.8% (D) Above 5%

38. The steel making processes used at Rourkela Steel plant is :

(A) LD processes (B) Open Hearth Processes

(C) Electric Processes (D) Duplex Processes

39. Select the Non destructive test from the following :

(A) Tensile test (B) Impact test

(C) Compression test (D) Ultrasonic test

40. Bronze is an Alloy of :

(A) Copper and Tin (B) Zinc and Tin

(C) Copper and Iron (D) Copper and Zinc

41. Let "a" be the length of one side of a cube, then its volume :

(A) a^2 (B) 4a (C) a^3 (D) 6a

42. The sides of a rectangle having Length (L) and Breadth (B), Its Area will be :

(A) 2 (L × B) (B) (L × B) (C) L − B (D) 4 (L × B)

43. Cast iron is a :

(A) Ductile materials (B) Elastic materials

(C) Brittle materials (D) None of the above

44. Copper - Zinc alloy is known as :

(A) Bronze (B) Brass (C) Lead (D) Solder

45. The power of an ordinary torch cell is :

(A) 1 Volt (B) 2 Volt (C) 1.5 Volt (D) 5 Volt

46. The unit of Energy is same as that of :

(A) Force (B) Power (C) Work (D) Velocity

47. The included angle of a common Twist drill is :

(A) 118° (B) 70° (C) 180° (D) 90°

48. One Horse Power is equal to :

(A) 746 watts (B) 764 watts (C) 1000 watts (D) 100 watts

49. Twist Drills are generally made of :

(A) Aluminium alloy (B) Mild steel

(C) High speed steel (D) Cast iron

50. Coating of Iron with Zinc is known as :

(A) Ionisation (B) Galvanization (C) Electro plating (D) Buffing

51. V-belts are usually used for :

(A) long drives (B) short drives

(C) long and short drives (D) any types of drives

52. Venturimeter is used to :

(A) To measure the velocity of a flowing fluid

(B) To measure the pressure of a flowing fluid

(C) To measure the discharge of a flowing fluid

(D) To measure the kinetic energy of flowing fluid

53. The total energy of a liquid particle in motion is equal to :

(A) Pressure head − Kinetic head + Potential head

(B) Potential head + Kinetic head − Pressure head

(C) Kinetic head − Pressure head + Potential head

(D) Pressure head + Kinetic head + Potential head

54. A pitot tube is used to measure :

(A) Discharge through a pipe

(B) Total pressure of fluid flowing in a pipe

(C) Pressure difference between two points in a pipe

(D) Velocity of flow at the required point in a pipe

55. The operation of making a cone-shaped enlargement at the end of a hole is known as :

(A) Spot facing (B) Tapping (C) Counter boring (D) Counter-sinking

56. The eye bolts are used for :

(A) Transmission of power

(B) Locking devices

(C) Lifting and transporting heavy loads

(D) Absorbs shock and vibration

57. A bolt of M 24×2 means that :

(A) The pitch of the thread is 24 and depth is 2 mm

(B) Cross-sectional area of the thread is 24 and pitch is 2 mm

(C) The nominal diameter of bolt is 24 mm and pitch is 2 mm

(D) The effective diameter of bolt is 24 mm and lead is 2 mm

58. The ball bearings are provided with a cage :

(A) To reduce friction

(B) To prevent the lubricant flowing out

(C) To maintain the balls at fixed distance

(D) To reduce slip

59. Cast iron is manufactured in :

(A) Blast furnace (B) Open hearth furnace

(C) Pit furnace (D) Cupola

60. Which of the following property is essential for a spring materials ?

(A) Stiffness (B) Ductility (C) Resilience (D) Plasticity

61. Regenerative feedback means the output is feedback with :

(A) Regenerator (B) Positive sign (C) Oscillation (D) Negative sign

62. In hydraulics system power is transmitted by :

(A) Gears (B) Belts (C) Fluid power (D) Piston

63. Normally a lubricant is selected for an engine on the basis of :

(A) Colour of the oil (B) SAE viscosity rating number

(C) Redwood seconds (D) Saybolt seconds

64. LPG (Liquefied Petroleum Gas) mainly consist of :

(A) Methane and ethane (B) Propane and butane

(C) Ethylene and acetylene (D) Methane and carbon dioxide

65. Ritcher scale is associated with :

(A) Intensity of illumination (B) Ocean depth

(C) Solar radiation (D) Earthquake

66. An hacksaw blade is specified by its :

(A) Width (B) Number of teeth

(C) Material (D) Length

67. Tapping is an operation of :

(A) Cutting internal threads (B) Drilling a hole

(C) Cutting external threads (D) Enlarging a hole

68. The lathe bed is made of :

(A) Mild steel (B) Alloy steel (C) Pig iron (D) Chilled cast iron

69. For a single start thread lead of the thread is equal to :

(A) Core diameter (B) Pitch (C) $2 \times$ Pitch (D) Major diameter

70. CPU stands for :

(A) Central Picture Unit (B) Central Permanent Unit

(C) Central Processing Unit (D) Central Precision Unit

71. When doing heavy work on fixing the job on vice, suitable vice is :

(A) Bench vice (B) Pin vice

(C) Leg vice (D) Any of the above

72. The unit of capacitance is :

(A) Ohm (B) Hertz (C) Henry (D) Fared

73. What is equivalent resistance of two parallel connected resistance R1 and R2 ?

(A) R1.R2 (B) R1 + R2 (C) $\frac{R1.R2}{R1+R2}$ (D) $\frac{R1+R2}{R1\ R2}$

74. In a symbol of transistor, the sign of arrow shows :

(A) Emitter (B) Collector

(C) Base (D) Both base and collector

75. Every action there is an equal and opposite reaction : the law is known as :

(A) Hooks law (B) Faraday's law

(C) Newton third law (D) Maxwell law

76. If the area of circle is equal to its circumference, diameter of circle equal to :

(A) 1 cm (B) 4 cm (C) 2 cm (D) 3.14 cm

77. 4/2 Directional control valve means :

(A) The valve have 2 ports and 4 position

(B) The valve have 4 ports and 2 position

(C) The valve have 6 ports and 2 position

(D) The valve have 3 ports and 2 position

78. In hydraulics system : double acting cylinder means :

(A) The fluid acting both side of the cylinder

(B) The fluid acting only one side of the cylinder

(C) The fluid never enter in to the cylinder

(D) Any of the above

79. In a direction control valve a ports marked by the letter "P" denotes :

(A) Pilot line (B) Exhaust line (C) Working line (D) Pressure line

80. The device used to control the time duration of working cycle, known as :

(A) Relay (B) Timers

(C) FRL unit (D) Non return valve

81. Who won the United Nations Human Rights Prize for the year 2013 ?

(A) Barack Obama (B) Malala Yousef Sai

(C) Arundhathi Roy (D) Lakshmi

82. On which day is celebrated as Human Rights Day ?

(A) January 10 (B) December 12 (C) December 10 (D) December 20

83. Which river is older than Himalaya ?

(A) Ganga (B) Satluj (C) Brahmaputra (D) Ravi

84. Which district is known as "District of lakes" ?

(A) Kulu (B) Manali (C) Mussori (D) Nainital

85. Who won the Gandhi Peace Prize for the year 2013 ?

(A) Manmohan Singh (B) Priyalakshmi Mohabatra

(C) Sushil Chand (D) Chandi Prasad Bhatt

86. Which was the last temple to be consecrated by Sree Narayana Guru ?

(A) Varkala (B) Kalavancode (C) Chempazhanthi (D) Aruvikkara

87. Where did the revolt of 1857 first broke out ?

(A) Delhi (B) Agra (C) Lucknow (D) Meerut

88. Salal Project is on which river ?

(A) Ravi (B) Jhelum (C) Chennab (D) Satluj

89. By which name is Yarlung Zanghob River in India known as ?

(A) Mahanadi (B) Ganga (C) Jhelum (D) Brahmaputra

90. Who wrote the autobiography "My tears my dream" ?

(A) Kumaranasan (B) Thycaud Ayyappa

(C) V.T Bhattathirippadu (D) Dr. Palppu

91. Who founded the 'Prathyaksha Raksha Daiva Sabha' in Kerala ?

(A) Vagbhadananda (B) Poikayil Yohannan

(C) Pandit Karuppa (D) Blessed Kuriakose Elias Chavara

92. Who founded the 'Forward Block' ?

(A) Rash Bihari Bose (B) Subash Chandra Bose

(C) Gandhiji (D) Captain Lakshmi

93. Who said the slogan "Swaraj is my birth right and i will have it " ?

(A) Gopalakrishna Ghokhale (B) Subash Chandra Bose

(C) Annie Besant (D) Bala Gangadhara Tilak

94. Who refereed Gandhiji as 'Father of Nation' ?

(A) Motilal Nehru
(B) Subash Chandra Bose
(C) Madan Mohan Malaviya
(D) Rabindranath Tagore

95. Who wrote the book 'The philosophy of the Bomb' ?

(A) Chandrasekhar Azad
(B) Bhagat Singh
(C) Subash Chandra Bose
(D) Surya Sen

96. Who gave leadership to the Quit India movement in Kerala ?

(A) K. Kelappan
(B) C. Sankaran
(C) E.M. Sankaran Namboothirippad
(D) K.B. Menon

97. Who was the last sovereign ruler of Travancore Royal family ?

(A) Sri Moolam Thirunal
(B) Sri Vishakam Thirunal
(C) Sri Chithirathirunal Balarama Varma
(D) Sri Chithira Thirunal Rama Varma

98. When did the first split in Indian National Congress occur ?

(A) Lahore Session in 1919
(B) Surat Split in 1907
(C) Lucknow Session in 1916
(D) Nagpur Session in 1920

99. Who founded the 'Satyashodhak Samaj' ?

(A) M.G. Ranade
(B) Sree Narayana Guru
(C) Raja Ramamohan Roy
(D) Jyothiba Phule

100. When did the Constitution of India came into force ?

(A) January 25, 1950
(B) January 25, 1949
(C) January 26, 1950
(D) January 26, 1949

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