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1. Joule - Thomson coefficient for an ideal gas having equation $Pv = RT$ is :
   (A) Unity   (B) Infinite   (C) 0.5   (D) Zero

2. Cycle consisting of two isothermal and two isobaric processes is :
   (A) Ericsson   (B) Joule   (C) Stirling   (D) Otto

3. Axial thrust will be negligible in case of :
   (A) helical gears
   (B) spiral gears
   (C) herringbone gears
   (D) bevel gears

4. Coarse grained steels :
   (A) are very tough
   (B) are less tough
   (C) do not have a tendency to distort
   (D) are lighter

5. A critical path has :
   (A) zero slack
   (B) minimum slack
   (C) maximum slack
   (D) infinite slack

6. Energy loss due to friction in laminar flow can be calculated either using Darcy's equation or Hagen - Poiseuille equation where friction factor is :

   (A) $\dfrac{32}{Re}$ (B) $\dfrac{64}{Re}$ (C) $\dfrac{16}{Re}$ (D) none of these

7. The shaft vibrations at nodes are :
   (A) maximum   (B) zero   (C) minimum   (D) unpredictable

8. In metals subjected to cold working, strain hardening effect is due to :
   (A) twinning mechanism
   (B) fracture mechanism
   (C) dislocation mechanism
   (D) none of the above

A

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9. Scheduling is :
   (A) alloting a job to a operator
   (B) alloting a job to a machine
   (C) fixing the time of completion of a job
   (D) detailing the sequence of operation job-wise and machine wise

10. The impeller used in mud pumps is :
    (A) open type   (B) semi open type
    (C) shrouded on one side only   (D) shrouded on both sides

11. A mechanism forms a structure when the degrees of freedom is equal to :
    (A) 2   (B) 1   (C) 0   (D) −1

12. Which of the following defect can occur due to improper design of a gating system ?
    (A) shrinkage   (B) porosity   (C) mould erosion   (D) any of the above

13. PERT is mainly useful for :
    (A) large projects
    (B) large and complex projects
    (C) research and development projects
    (D) any small or large projects

14. Zeroth law of thermodynamics defines :
    (A) internal energy (B) enthalpy   (C) temperature   (D) pressure

15. In a vibrating system the damping factor is unity, then :
    (A) the system will have no vibration
    (B) the system will be highly damped
    (C) the system will be critically damped
    (D) the system will be under-damped

16. In EDM, the number of discharges per minute may be as high as :
    (A) 3000   (B) 6000   (C) 60,000   (D) 600,000

17. Work sampling is used to find :
    (A) percentage occurrence of certain activity
    (B) rating of a job
    (C) pre - determined motion time data
    (D) standard time for a repetitive operation

18. If the diameter of a centrifugal pump impeller is doubled keeping the discharge and speed constant, then the head needs to be reduced by :

    (A) 16 times   (B) 4 times   (C) 2 times   (D) 8 times

19. A parabolic cam is so named because its :

    (A) Profile is parabolic

    (B) Follower displacement vs time plot is parabolic

    (C) follower velocity vs time plot is parabolic

    (D) follower acceleration vs time plot is parabolic

20. The tool may fail suddenly because of :

    (A) Crater wear   (B) Flank wear

    (C) Both crater and flank wear   (D) Spalling

21. Break - even analysis is a :

    (A) short term analysis

    (B) long term analysis

    (C) average of short and long term analysis

    (D) none of the above

22. A double - slider four - bar mechanism consisting of two turning pairs and two sliding pairs, will have a degree of freedom equal to :

    (A) 1   (B) 2   (C) 3   (D) 4

23. A ship is seen to enter sea from a river. Its depth of submergence will :

    (A) increase

    (B) decrease

    (C) remains same

    (D) depend on the material of the ship

24. Position feedback device on NC machine is :

    (A) Shaft encoder   (B) Linear scales

    (C) Inductosyns   (D) Any of the above

25. If the unit ordering cost is doubled, then the EOQ will :

    (A) be halved   (B) be doubled

    (C) increase by 1.414 times   (D) decrease by 1.414 times

26. The rivet head used for structural work such as roof trusses is usually :
    (A) pan head   (B) snap head
    (C) conical head   (D) counter sunk head

27. Bernoulli's equation is applicable between any two points in :
    (A) rotational flow of an incompressible fluid
    (B) irrotational flow of compressible or incompressible fluid
    (C) steady, rotational flow of an incompressible fluid
    (D) steady, irrotational flow of an incompressible fluid

28. The standard input file format for 3-D printing using Fused Deposition Method is :
    (A) .stl   (B) .igs   (C) .pdf   (D) .stp

29. Which of the following material is difficult to be spot welded ?
    (A) Stainless steel   (B) Copper
    (C) Cold rolled mild steel   (D) Hot rolled mild steel

30. Which of the following is a technique for forecasting ?
    (A) Exponential smoothing   (B) Gantt chart technique
    (C) PERT/CPM   (D) Control charts

31. A control volume refers to :
    (A) a specified mass   (B) a fixed region in space
    (C) an isolated system   (D) a reversible process

32. Which process does not increase the fatigue strength ?
    (A) cold working   (B) shot peening
    (C) grinding and lapping   (D) hot working

33. Which of the following type of layout is suitable for automobile manufacture ?
    (A) Process layout   (B) Product layout
    (C) Fixed position layout   (D) Combination layout

34. A water supply pipeline changes its alignment through a bend when the flow in the pipeline is increased by operating a valve. The flow in the bend is classified as :
    (A) steady, uniform flow   (B) unsteady, uniform flow
    (C) unsteady, non-uniform flow (D) steady, non-uniform flow

35. The factor to be considered in design of hydrodynamic journal bearing is :
   (A) specific pressure
   (B) rubbing speed
   (C) viscosity of lubricant
   (D) all of the above

36. How many slip systems are present in an HCP crystal structure ?
   (A) 3
   (B) 6
   (C) 12
   (D) None of these

37. Which stainless steel is used in cryogenic vessels ?
   (A) Ferritic
   (B) Austenitic
   (C) Martensitic
   (D) None of the above

38. If the first and last gears are at the same axis, then the type of gear train is known as :
   (A) Compound gear train
   (B) Epicyclic gear train
   (C) Reverted gear train
   (D) Uniaxial gear train

39. The main advantage of the line organization is :
   (A) quick decisions at all the levels
   (B) defined responsibilities at all the levels
   (C) effective control
   (D) all of the above

40. A Public Limited Company can be started by :
   (A) not less than 7 persons
   (B) not less than 3 persons
   (C) not less than 2 persons
   (D) none of the above

41. Which component is also called wrist pin ?
   (A) King pin
   (B) Piston pin
   (C) Shackle pin
   (D) Cotter pin

42. The term 'valve lash' in case of over head valve engine refers to :
   (A) Valve noise when it hits the seat
   (B) Clearance between valve tip and valve actuating component
   (C) Clearance between valve face and seat
   (D) Valve noise when it hits the rocker tip

43. When the stroke is more than the bore in a piston engine, it is called :
   (A) Over - square engine
   (B) Boxer engine
   (C) Under - square engine
   (D) None of the above

A

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44. The material on the positive plate of a fully charged lead acid battery is :
    - (A) Lead peroxide seen as chocolate brown colour
    - (B) Spongy lead seen as grey colour
    - (C) Lead peroxide seen as grey in colour
    - (D) Spongy lead seen as chocolate brown in colour

45. The necessity of a radiator cap is to :
    - (A) Increase the boiling point of the coolant
    - (B) Relieving the system pressure when required
    - (C) Relieving the system vacuum when required
    - (D) All of the above

46. The working principle of a conventional automobile clutch is :
    - (A) Pascal's law
    - (B) Bernoulli's principle
    - (C) Friction
    - (D) Hydraulic pressure

47. The component which gives out the heat into atmosphere in a conventional car A/C system is :
    - (A) Evaporator
    - (B) Compressor
    - (C) Condenser
    - (D) None of the above

48. In Hotchkiss drive for a conventional heavy vehicle, the driving thrust is taken by :
    - (A) Propeller shaft
    - (B) Shock absorber
    - (C) Leaf spring
    - (D) All of the above

49. In a torque converter system, the engine flywheel is directly connected to :
    - (A) Impeller
    - (B) Stator
    - (C) Turbine
    - (D) Vane pump

50. In the case of poppet valves, valve guide makes contact with :
    - (A) Valve head
    - (B) Valve face
    - (C) Valve stem
    - (D) Valve margin

51. The movement of a vehicle with respect to its transverse axis is called :
    - (A) Rolling
    - (B) Pitching
    - (C) Yawing
    - (D) None of the above

52. In full floating type axle arrangement, the axle casing has to take up :
    - (A) Driving torque
    - (B) Vehicle load
    - (C) All of the above
    - (D) None of the above

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A

53. Without considering the number of cylinders, which engine will have the least crank shaft length :

    (A) Inline engine   (B) V engine

    (C) W engine   (D) Radial engine

54. In a Wankel engine, the four processes viz. suction, compression, power and exhaust happens within :

    (A) 1/3 rotation   (B) 1/2 rotation   (C) 2 rotations   (D) 1 rotation

55. EGR system helps mainly in reducing which pollutant ?

    (A) CO_2 (B) CO   (C) HC   (D) NO_x

56. In a 4 stroke engine, if the crank shaft gear has 30 teeth, then the camshaft gear will have :

    (A) 15 teeth   (B) 60 teeth

    (C) 120 teeth   (D) None of the above

57. In a conventional distributor less ignition system equipped on a six cylinder engine, the minimum number of ignition coils will be :

    (A) 6   (B) 2   (C) 3   (D) None of the above

58. In a conventional ignition system, the condenser is located :

    (A) Inside the distributor cap   (B) On the distributor shaft

    (C) On the ignition coil   (D) None of the above

59. Double declutching is required during :

    (A) Up - shifting   (B) Down - shifting

    (C) Shifting to neutral   (D) Shifting to reverse

60. In a normal head lamp, theoretically the reflector should have the shape :

    (A) Elliptical curve   (B) Parabolic curve

    (C) Hyperbolic curve   (D) Hemispherical curve

61. Automotive alternator housing is made up of :

    (A) Cast iron   (B) Pressed steel

    (C) Aluminium   (D) None of the above

62. When the clutch free pedal play is excessively increased, then :
   (A) Gear engagement becomes smooth
   (B) Gear engagement becomes hard
   (C) Clutch life increases
   (D) Both (A) and (C)

63. The effect of centrifugal force is more prominent in the working of :
   (A) Coil spring clutch
   (B) Diaphragm spring clutch
   (C) Both coil spring and diaphragm spring clutch equally
   (D) Neither coil spring nor diaphragm spring clutch

64. During stall period in a torque converter,
   (A) Maximum torque multiplication occurs
   (B) Turbine is stationary and impeller is rotating at engine speed
   (C) Maximum slip occurs
   (D) All of the above

65. In which type of differential gears, the pinion shaft axis lies below the crown wheel axis ?
   (A) Straight bevel gear arrangement
   (B) Spiral bevel gear arrangement
   (C) Hypoid gear arrangement
   (D) All of the above

66. In a normal differential, the ends of the cross or spider will be held in the :
   (A) Sun gear   (B) Pinion gear   (C) Crown gear   (D) Star gear

67. The component which connects the leaf spring set to the axle casing is :
   (A) Centre bolt   (B) Shackle   (C) U bolt   (D) Leaf clamp

68. The helper spring comes into action when :
   (A) The load on the main leaf set is more
   (B) The deflection of the main leaf set is more
   (C) Both (A) and (B)
   (D) None of the above

69. The ultimate energy conversion happening in a hydraulic shock absorber is :
   (A) Vertical force into hydraulic energy
   (B) Vertical force into heat energy
   (C) Vertical force into pressure energy
   (D) None of the above

70. In a propeller shaft if the length of the shaft is decreased by half, then the :
   (A) Critical whirling speed is increased by four times
   (B) Critical whirling speed is decreased by four times
   (C) Critical whirling speed is increased twice
   (D) Critical whirling speed is decreased to half

71. Which type of front suspension gives maximum space for engine installation ?
   (A) Wishbone suspension system   (B) Mac Pherson strut suspension system
   (C) Trailing link suspension system   (D) Vertical guide suspension

72. The ride quality of a vehicle will be maximum when :
   (A) The sprung weight is maximum
   (B) The sprung weight is minimum
   (C) The unsprung weight is maximum
   (D) Both (A) and (C)

73. The front stabilizer rod is used to reduce the tendency of a vehicle to :
   (A) Roll   (B) Pitch   (C) Yaw   (D) Bounce

74. In Ackermann steering system, perfect steering condition is attained only during :
   (A) 2 positions of steering   (B) 3 positions of steering
   (C) Straight ahead position only (D) All the steering positions

75. In a normal steering linkages used in a rigid axle suspension vehicle, the component between the cross shaft and the drag link is :
   (A) Tie rod   (B) Track rod   (C) Pitman arm   (D) Steering arm

76. The metal used as balancing weights in wheel balancing is :
   (A) Copper   (B) Steel   (C) Lead   (D) Brass

77. In a spoke wheel, while handling the braking torque, the spokes are subjected to :
   (A) Tension   (B) Compression   (C) Bending stress   (D) Shearing

78. In a conventional hydraulically actuated drum brake, if it is twin leading type, minimum number of wheel cylinders required are :
   (A) One   (B) Two
   (C) Four   (D) Wheel cylinder not required

79. In an air brake system, the valve that the driver can actuate is :
   (A) Dual brake valve   (B) Unloader valve
   (C) System protection valve   (D) Non return valve

80. The component which restricts the flow of current from battery to generator is :
   (A) Regulator diodes   (B) Voltage regulator
   (C) Current regulator   (D) Cut - out relay

81. The city of Varanasi is situated on the banks of river.
   (A) Sutlej   (B) Yamuna   (C) Ganga   (D) Godawari

82. Sasthamkotta lake is the only major fresh water lake in Kerala belong to which district ?
   (A) Thiruvananthapuram   (B) Kollam
   (C) Alappuzha   (D) Ernamkulam

83. In which year Prime Ministers Gramodaya Yojana (PMGY) started ?
   (A) 2000   (B) 2001   (C) 2004   (D) 2005

84. Who is known as the Father of Indian Politics and Economics ?
   (A) P.C Mahalanobis   (B) M. Visveswarayya
   (C) Adam Smith   (D) Dadabhai Naoroji

85. Who is the present chairman of NITI Aayog ?
   (A) Prime Minister Narendra Modi   (B) Aravind Panagaria
   (C) Montek Singh Aluvalia   (D) Anurag Thakkur

86. The fourth visit of Mahatma Gandhi in Kerala is connected with :
   (A) Vaikom Satyagraha   (B) Khilafat Movement
   (C) Upliftment of the Harijans (D) Temple entry proclamation

87. Who was the founder of Secret Society 'Anusilan Samithi' ?
   (A) Barindra Kumar Gosh   (B) Aurobindo Gosh
   (C) Subhash Chandra Bose   (D) Rashbihari Gosh

88. When did Balgangadhar Tilak declared 'Swaraj is my birth right and I will have it' ?
   (A) 1905   (B) 1907   (C) 1914   (D) 1916

89. Where is the headquarters of Coconut Development Board ?
   (A) Kozhi   (B) Kochi
   (C) Thiruvananthapuram   (D) Thrissur

90. The Anamudi Peak is in the High Ranges of :
   (A) Malappuram district   (B) Kollam district
   (C) Idukki district   (D) Wayanad district

91. The first to perform mirror consecration in South India.
   (A) Sree Narayanan Guru   (B) Vaikunda Swamikal
   (C) Sahodaran Ayyappan   (D) Chattampi Swamikal

92. Who was the founder of the Sidhasramam at Alathur in Palakkad district ?
   (A) Brahmananda Sivayogi   (B) Vagbhatananda
   (C) Pandit Karuppan   (D) Chattampi Swamikal

93. Where was Ayya Vaikunda Swamikal born in 1809 ?
   (A) Kottayam   (B) Swamithoppil   (C) Kannanmula   (D) Alathur

94. In which year Kuriakose Elias Chavara Achan declared as blessed one ?
   (A) 2010 December (B) 2011 January (C) 2013 January (D) 2014 November

95. Who is known as Lincoln of Kerala ?
   (A) Kuriakose Elias Chavara   (B) K.P. Karuppan
   (C) Poikayil Yohannan   (D) Dr. Palpu

96. Who is the president of World Bank ?
   (A) Kim Jong   (B) Shinzo Abe   (C) Jim Yong Kim   (D) Mong Palatino

97. Who is the director of Malayalam film Kathakali ?
   (A) Vijaibabu   (B) R.S. Vimal
   (C) Basil Joseph   (D) Saijo Kannanaikkal

98. Ace Against odd is the autobiography of :
   (A) Saina Nehwal   (B) P.V. Sindhu   (C) Sania Mirza   (D) Martina Hingis

99. Who is the Vice Chairman of State Planning Board ?
   (A) Dr. V.K. Ramachandran   (B) Dr. R. Ramesh
   (C) Dr. B. Iqbal   (D) Aravind Panagaria

100. Andy Murray, winner of Wimbledon title for Men's single 2016, belongs to which country ?
   (A) USA   (B) France   (C) Spain   (D) Britain

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