A

(T.S) ECET 2016

1. Which of the following corner joints is the strongest
(1) rebate (2) mitre (3) dovetail (4) butt

2. To make accurate hole with a smoother finish which tool is used
(1) twist drill (2) reamer (3) broach (4) straight fluted drill

3. Which of the following is not a metal-squeezing operation
(1) riveting (2) coining (3) hobbing (4) spinning

4. The instrument which is used exclusively for linear measurement is
(1) slip gauge (2) combination set (3) sprit level (4) straight edge

5. Spot facing is the operation performed on which one of the following machine
(1) shaper (2) lathe (3) drilling machine (4) milling machine

6. The purpose of using capstan and turret lathe is for
(1) precision machining (2) increasing productivity
(3) machining with single tool (4) machining very large components

7. The surface finish operation which is usually performed after polishing is
(1) tumbling (2) burnisihing (3) buffering (4) honing

8. The position of slides of a NC machine tool is controlled by
(1) transducers (2) converter
(3) servomechanism (4) sensors

9. Which of the following system requires large storage facility
(1) NC (2) CNC (3) DNC (4) LNC

10. The work envelop of revolute co-ordinate system robot is
(1) rectangular (2) partially spherical
(3) cylindrical (4) non-uniform

11. Which welding operation is performed at lower temperatures
(1) forge (2) arc (3) gas (4) fusion

12. Bare electrodes are used for welding of
(1) wrought iron (2) high carbon steel
(3) alloy steel (4) non-ferrous alloys

13. Which one of the following is true for carburizing flame
(1) no inner cone (2) shorter inner cone
(3) larger inner cone (4) two inner cone at tip

14. The welding defect caused due to excessive current
(1) porosity (2) weld crack (3) spatter (4) undercut

15. Which one of the following is related to Hot working process
(1) stress required is higher (2) higher distortion of grains
(3) no internal and residual stresses (4) better surface finish is achieved

16. High silica content is found in which one of the following sands
(1) parting (2) core (3) facing (4) baking

17. When the molten metal fails to reach all the sections of the mould resulting in an incomplete casting, such defect is known as
(1) shrinkage (2) hot tears (3) cold shuts (4) warpage

18. The pattern used of rapid production of small and accurate castings is
(1) match plate (2) sweep (3) skeleton (4) multipiece

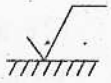
19. Which one of the following is true in AC arc welding
(1) bare electrodes can be used
(2) maintenance cost is higher
(3) there is no problem of arc-blow
(4) cannot be used for welding at long distances from power supply

20. Which of the following product is manufactured by forgind
(1) special electrical contacts
(2) turbine blades
(3) cross-cut chisel
(4) tungsten carbide cutting tool

21. The drawing useful for the craftsman on the shop floor is
(1) machine drawing (2) production drawing
(3) assembly drawing (3) component drawing

22. The type of fit suggested for parts which are to be frequently dismantled but are secured by keys is
(1) H7/n6 (2) H7/m6 (3) H7/j6 (4) H7k6

23. Which one of the following symbol is used on a surface to indicate removal of material by machining

(1)  (2)  (3)  (4) 

24. Surface roughness grade symbol "∇" indicates roughness grade number
(1) N12 (2) N10 (3) N8 (4) N5

25. The bolt designation Hex Bolt M20 × 1.5 × 75NL – IS "1364-S-4.6 represents
(1) bolt with a nut and a lock nut, size M20, pitch 1.5, length 75, grade S and class 4.6
(2) bolt with a nut and a lock nut, size M20, pitch 1.5, length 75, class S and grade 4.6
(3) bolt with two nut size M20, pitch 1.5, length 75, grade S and class 4.6
(4) bolt with a nut a washer size M20, pitch 1.5, length 75, class S and grade 4.6

26. The ability of material to resist fracture is known as
(1) strength (2) stiffness (3) toughness (4) hardness

27. In the stress-strain diagram for mild steel which one of the following represents the point where strain increases without increase in stress
(1) proportional limit (2) elastic limit
(3) yield point (4) ultimate tensile strength

28. Scleroscope test to measure hardness is based on which of the following
(1) depth of indentation (2) area of indentation
(3) rebound of hammer (4) scratching of material

29. The furnace used to produce cast iron
(1) puddling (2) cupola (3) bessemer (4) open hearth

30. Which of the following process is used to produce high quality steel
(1) electric (2) L-D (3) bessemer (4) open hearth

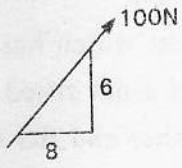
31. In iron-carbon diagram eutectic reaction occurs at
(1) 723^0C and 0.8%C (2) 1130^0C and 0.8%C
(3) 723^0C and 4.3%C (4) 1130^0C and 4.3%C

32. The amount of pearlite obtained from austenite with 1.2% C just below 723^0C
(1) 93.2% (2) 6.8% (3) 51.3% (4) 48.7%

33. In which one of the following heat treatment operation fine grains are formed
(1) annealing (2) normalizing (3) hardening (4) tempering

34. Cemented carbide tools are manufactured by one of the following process
(1) forging (2) powder metallurgy
(3) rolling (4) extrusion

35. Resolve the force 100N into rectangular components, Fx and Fy



(1) 80 N and 60 N (2) 75N and 25 N (c) 60 N and 40 N (4) 80 N and 20 N

36. A rod is 2m long at a temperature of 30^0C with one end fixed and the free end at a distance of 1mm from a rigid wall. If the temperature of the rod is raised to 100^0C the stress experienced by the rod considering $\alpha = 12 \times 10^{-6}/^0$C

(1) tensile (2) compressive (3) zero stress (4) bending stress

37. The maximum deflection of a fixed beam of span 'l' carying a concentrated load 'W' at the centre is

(1) $\frac{Wl^3}{48EI}$ (2) $\frac{Wl^3}{192EI}$ (3) $\frac{Wl^3}{96EI}$ (4) $\frac{Wl^3}{12EI}$

38. The drives usually chosen to have constant velocity ratio is

(1) flat belt (2) v-belt (3) rope (4) chain

39. The purpose of guide pulley is to

(1) connect two-non parallel shafts

(2) link or delink a machine to or form the main shaft

(3) have large velocity ratio

(4) maintain the tension in the belt

40. Which one of the following is valid when using involute gear tooth profile

(1) varied pressure angle (2) smooth running

(3) stronger teeth (4) complicated to manufacture

41. For maximum power transmission which of the following statement is true with regards to centrifugal tension (Tc) and max allowable belt tension (T)

(1) Tc = 2T (2) $Tc = \frac{T}{3}$ (3) $Tc = \frac{T}{2}$ (4) $Tc = \frac{2T}{3}$

42. A gear train in which the axis of some of the wheels are not fixed but rotate around the axis of other wheels with which they mesh is known as

(1) reverted gear train (2) simple gear train

(3) epicyclical gear train (4) compound gear train

43. The pre-selective gear-box of an automobile is made up of

(1) bevel gears (2) sun and planet gears

(3) helical gears (4) herring bone gears

44. The efficiency of chain drive is

(1) 75% (2) 84% (3) 92% (4) 98%

45. A stud is a machine element which has

(1) a head on one end and a nut fitted to the other

(2) head at one end and other end fits into a tapped hole in the other part to be joined

(3) both the ends threaded

(4) pointed threads

46. A key made from a cylindrical disc having segmental cross-section is known as
(1) wood-ruff key (2) feather key (3) disc key (4) gib head key

47. The sleeve or muff coupling is designed as a
(1) thin vessel (2) hollow vessel (3) thick vessel (4) solid shaft

48. The deflection of helical spring is directly and inversely proportional respectively to
(1) D^2, d^2 (2) D^3, d^2 (3) D^4, d^3 (4) D^3, d^4

49. Angle of twist of shaft of diameter 'd' is inversely proportional to
(1) d (2) d^2 (3) d^3 (4) d^4

50. Which property of a system is an intensive property
(1) mass (2) pressure (3) volume (4) energy

51. In throttling process which of thermodynamic property is not affected
(1) entropy (2) enthalpy (3) temperature (4) pressure

52. The rate of heat transferred to a heat engine is 35 kJ/s and is net power output is 12.5kW. What is the thermal efficiency
(1) 21.2 (2) 19.18 (3) 35.7 (4) 56.2

53. 100 kJ of heat is supplied to one kg of air at constant pressure. The temperature increases from 25^0C to 120^0C.
(1) 0.024kJ/K (2) 0.168kJ/K (3) 0.144kJ/k (4) 0.2894kJ/K

54. What is the air standard efficiency of engine working on Otto cycle with the compression ratio of 4. Assume $\gamma = 2$
(1) 45% (2) 55% (3) 65% (4) 75%

55. A diesel engine developing an IP of 37.5 kW consumes fuel of calorific value 45,000kJ/kg at the rate of 10 kg/hr. What is the indicated thermal efficiency
(1) 20% (2) 25% (3) 30% (4) 35%

56. The purpose of intercooler used in air compressors is to
(1) cool the air surrounding the air compressor
(2) cool the air after compression
(3) remove heat from the fluid used to cool the air compressor
(4) Supply cool air it the compressor before compression

57. The condition of maximum efficiency in multistage compressor
(1) $P_2 = P_1 \times P_3$ (2) $P_2 = \sqrt{P_1 + P_3}$ (3) $P_2 = \sqrt{P_1 \times P_3}$ (4) $P_2 = \sqrt{\frac{P_1}{P_3}}$

58. Constant volume combustion gas turbine operates on
(1) carnot cycle (2) joule cycle (3) brayton cycle (4) atkinson cycle

59. The overall efficiency of jet propulsion
(1) increase with higher altitude (2) decrease with higher altitude
(3) independent of altitude (4) increases with higher fuel supply

60. The working substance used in gas turbine
(1) steam (2) gasolene (3) air (4) water

61. The most efficient method of compressing the air is to compress it
(1) isothermally (2) isenthalpically (3) isobarically (4) adiabatically

62. Fluid is a substance which cannot withstand
(1) compressive stresses (2) tensile stresses
(3) shear stresses (4) torsion stresses

63. For maximum transmission of power through pipe line, the head supplied is _____ times the head lost due to friction
(1) two (2) three (3) four (4) five

64. A jet of water 12mm diameter is moving with a velocity of 70m/sec. The force exerted by the jet on a fixed plate is
(1) 0.554kN (2) 44.17kN (3) 27.87kN (4) 1.5kN

65. Which of the following is related to Kaplan turbine
(1) not efficient at part loads (2) turbine vanes are fixed
(3) low head and large flows (4) low speed for small head

66. In a reaction turbine to avoid cavitation
(1) reduce the load on the turbine (2) lower the turbine below the tail race
(3) raise the turbine above the tail race (4) increase the head of water

67. Which of the following is true for a reciprocating pump
(1) smooth and even flow
(2) low head pump having high efficiency
(3) torque is not uniform
(4) priming is needed

68. Which type of accumulator is used for medium pressure and fast response applications
(1) bag (2) diaphragm (3) gas (4) piston

69. Purpose of sequence value in a pneumatic circuit is to
(1) supply air to constant pressure
(2) relives excess pressure
(3) assures minimum pressure in a circuit
(4) direct air supply to a given circuit

70. Which of the following is operated by electric current
(1) pilot valve (2) solenoid valve (3) disc valve (4) spool valve

71. Pneumatic equipments are exclusively used in
(1) textile industry (2) mining operates
(3) chemical industry (4) beverage indstry

72. The dryness fraction of steam at a certain pressure where h = 420 kJ/kg; L = 2300 kJ/kg and H = 2260kJ/kg is
(1) 0.75 (2) 0.8 (3) 0.9 (4) 1.0

73. Maximum working pressure in a water tube boiler is
(1) 225 bar (2) 450 bar (3) 2250 bar (4) 22.5 bar

74. Forced circulation of water takes place in the following type of boiler
(1) babcock & wilcox (2) lancashire
(3) cochran (4) la-mont

75. The efficiency of boiler is 80% and calorific value of fuel is 40,000 kJ/kg /then energy in steam per kg of fuel burnt
(1) 52,000 (2) 32,000 (3) 27,000 (4) 12,500

76. Effect of friction on a nozzle is to
(1) increase velocity (2) increase dryness fraction
(3) reduce pressure (4) increase volume

77. Super saturation of steam takes place in the
(1) mouth of nozzle (2) converging portion
(3) diverging portion (4) throat

78. For discharge to be maximum, velocity of steam at the throat is equal to
(1) subsonic velocity (2) supersonic velocity
(3) sonic velocity (4) twic supersonic velocity

79. In a reaction turbine, a stage consitutes
(1) one row of fixed blades and one row of moving blades
(2) one row of fixed blades only
(3) one row of moving blades only
(4) either two rows of moving or fixed blades

80. Curtis turbine is basically
(1) simple impulse turbine
(2) simple reaction turbine
(3) pressure compounded impulse turbine
(4) velocity compounded impulse turbine

81. The ratio of work done by the blades to the energy supplied to the blades is called
(1) blade factor (2) blade speed ratio
(3) overall efficiency (4) diagram efficiency

82. One ton machine produced a cooling effect of
(1) 210 J/min (2) 2.1×10^5 J/min
(3) 2.1×10^3 J/min (4) 210×10^5 J/min

83. Which one of the following type of refrigerator uses nitrogen
(1) gas throttling (2) evaporative (3) liquid gas (4) dry ice

84. A refrigerator required 1.5 kW per ton of refrigeration. The COP of heat pump is
(1) 2.3 (2) 3.3 (3) 1.3 (4) 4.3

85. In a bell-coleman air refrigeration cycle the heat rejected from air is done
(1) isothermally (2) adiabatically (3) isobaric (4) isentropic

86. The capacity of a refrigerator is 600 tons when working between 10^0C to 29^0C. Minimum power required is
(1) 175 kW (2) 140 kW (3) 115 kW (4) 210 kW

87. Which type of organization is suitable for continuous process industries
(1) scalar (2) functional (3) line and staff (4) committee

88. A-B-C analysis depends on
(1) the unit cost of the item (2) annual consumption of items
(3) importance of any item (4) category of the item

89. The quantity required to ensure against exhaustion of the supply during the intervals between the palcement of an order and delivery represents.
(1) standard order (2) ordering point
(3) minimum stores (4) maximum stores

90. If the number of units consumed per year is 20 and ordering and setup cost is Rs 40 and annual inventory carry cost per unit is Rs. 16. What is EOQ.
(1) 4 (2) 6 (3) 8 (4) 10

91. Which one of the following is not marketing functions
(1) buying (2) transportation (3) financing (4) sampling

92. Work study is a technique which deals with
(1) how many jobs to be done (2) how should a job be done
(3) improving the quality of job done (4) profit obtained from the job done

93. Which type of inspection is used in product layout
(1) sample (2) first piece (3) pilot piece (4) functional

94. Insurance on finished goods are shown under
(1) factory overheads (2) administrative overheads
(3) selling expenses (4) miscellaneous expenses

95. The depreciation method which assumes that the loss of value of machine is directly proportional to its age
(1) straight line (2) diminishing balance
(3) sinking fund (4) annuity charging

96. Firing order of a 6-cylinder engine is usually
(1) 1-6-3-5-2-4 (2) 1-4-3-2-6-5 (3) 1-5-3-6-2-4 (4) 1-3-6-2-4-5

97. The secondary circuit in the ignition system includes secondary winding, distributor and
(1) spark plug (2) condenser (3) ignition switch (4) contact breaker

98. Most of the vehicles having automatic transmission connect the engine to the gear box through
(1) multiplate clutch (2) dog and apline clutch
(3) fluid clutch (4) cone clutch

99 Increase torque in autombile is obtained by
(1) increasing the speed (2) increasing the power
(3) decreasing the speed (4) decreasing the power

100. The operation used to remove trapped air from hydraulic system is known as
(1) tapping (2) bleeding (3) trapping (4) evacuating