(A.P) ECET 2015

C

1. The latent heat of vaporization at critical point is
   (a) Less than 1 (b) Less than zero
   (c) Equal to 1 (d) Equal to zero
2. Work done in reversible adiabatic process is given by
   (a) $\frac{P_2V_2 - P_1V_1}{1-V}$ (b) $P_1 (V_1 - V_2)$ (c) $P_2 (V_2 - V_1/V2$ (d) $P_1V_1 \log \frac{V_2}{V_1}$
3. Fuel is ignited in a diesel engine by
   (a) Spark plug
   (b) An injector
   (c) Virtue of the temperature of the compressor
   (d) A glow plug
4. The four strokes in a petrol engine are in the following order
   (a) Suction, exhaust, power and compression
   (b) Exhaust, suction, compression and power
   (c) Power, suction, compression and exhaust
   (d) Compression, suction, exhaust and power
5. Super charging is essential in
   (a) Diesel engines (b) Rail engines
   (c) Aircraft engines (d) Marine engines
6. An isentropic process on T-S diagram is represented by
   (a) Horizontal line (b) Vertical line
   (c) Inclined line (d) Curved line
7. Diffuser in a compressor is used to
   (a) Make the flow stream line
   (b) Convert kinetic energy into pressure energy
   (c) Increase degree of reaction
   (d) Increase velocity
8. The following analysis can be done using orsat apparatus
   (a) Gravimetric analysis of the dry products of combustion
   (b) Gravimetric analysis of products of combustion including H_2O
   (c) Volumetric analysis of the dry products of combustion
   (d) Volumetric analysis of products of combustion including H_2O

9. For each mole of oxygen, number of moles of nitrogen required for complete combustion of carbon is

(a) 23/21 (b) 29/21

(c) 77/21 (d) 79/21

10. If infinite number of heaters be used in a gas turbine, then expansion process approaches

(a) Isothermal (b) Isentropic

(c) Adiabatic (d) Isobaric

11. The hydraulic double acting cylinder consists of

(a) Two way directional valve (b) One way directional valve

(c) Four way directional valve (d) Three way directional valve

12. The centre of gravity of the volume of the liquid displaced by an immersed body is called

(a) Meta - Centre (b) Centre of pressure

(c) Centre of buoyancy (d) Centre of gravity

13. Dynamic viscosity of most of the liquids with rise in temperature

(a) Increases (b) Decreases

(c) Remains unaffected (d) Unpredictable

14. Ratio of inertia force to elastic force is known as

(a) Mach number (b) Froude number

(c) Reynold's number (d) Weber's number

15. Manning formula is used to determine

(a) Head loss due to friction in pipes flouring full under pressure

(b) Head loss due to friction in open channels

(c) Hydraulic jump

(d) Flow in pipes

16. The velocity of fluid particle at the centre of pipe section is

(a) Zero (b) Minimum

(c) Maximum (d) Average

17. To avoid cavitation in centrifugal pumps

(a) Suction pressure should be low (b) Delivery pressure should be low

(c) Suction pressure should be high (d) Delivery pressure should be high

18. Reaction turbines are used for

(a) Low head and low discharge (b) High head and high discharge

(c) High head and low discharge (d) Low head and high discharge

19. For small discharge at high pressure, following pump is preferred

(a) Centrifugal (b) Axial flow

(c) Propeller (d) Reciprocating

20. Bochran boiler is a

(a) Horizontal Fire - Tube Boiler (b) Horizontal Water-Tube Boiler

(c) Vertical Water -Tube Boiler (d) Vertical Fire Tube Boiler

21. The ratio of heat utilized to produce steam and the heat liberation in furnace is known as

(a) Boiler effectiveness (b) Boiler evaporative capacity

(c) Equivalent evaporation (d) Boiler efficiency

22. In the impulse turbine the steam expands

(a) In the nozzle (b) In the blades

(c) Partly in nozzle and partly in blades (d) Neither in nozzles nor in blades

23. De Laval turbine is used for applications requiring

(a) High power, high speed (b) High power, low speed

(c) Low power, high speed (d) Low power, lower speed

24. Combining impulse stages in series results in

(a) Increase of speed (b) Decrease of speed

(c) Speed remains unaffected (d) Unpredictable speed effect

25. In Parson's turbine, the relative velocity at outlet as compared to inlet is

(a) Greater (b) Lesser

(c) Same (d) Unpredictable

26. The maximum velocity attainable at the throat of a steam nozzle is

(a) Much less than sonic velocity (b) Slightly less than sonic velocity

(c) Sonic Velocity (d) Supersonic Velocity

27. Nozzle efficiency is describe as

(a) Isentropic heat drop / useful heat drop

(b) Useful heat drop / isentropic heat drop

(c) Saturation temperature / super saturation temperature

(d) Super saturation temperature / saturation temperature

28. Freon group of refrigerants are

(a) Sonic
(b) Inflammable
(c) Non - toxic and inflammable
(d) Non - toxic and non inflammable

29. Superheating in a refrigeration cycle, if occurs outside evaporator,

(a) Increases COP
(b) Decreases COP
(c) COP remains constant
(d) Unpredictable

30. Which one of the following statements is correct regarding ammonia absorption system ?

(a) A function of the temperature of the solution alone
(b) A function of the temperature and pressure of the solution
(c) A function of the pressure of the solution irrespective of the temperature
(d) Independent of the temperature and pressure of the solution

31. In psychrometric charts, dry bulb temperature lines are

(a) Horizontal
(b) Vertical
(c) Curved
(d) Inclined sloping

32. Motion study involves analysis of

(a) Actions of operator
(b) Layout of work place
(c) Fooling
(d) Equipment

33. Statistical quality control techniques are based on the theory of

(a) Quality
(b) Statistics
(c) Probability
(d) Reliability

34. ABC analysis deals with

(a) Analysis of process chart
(b) Flow of material
(c) Ordering schedule of job
(d) Controlling inventory costs money

35. What does symbol ' ' imply in work study ?

(a) Operation
(b) Inspection
(c) Transport
(d) Permanent storage

36. According to Pareto principle, an effective man is one who

(a) Can manage his loss
(b) Can manage his subordinates
(c) Can manage his colleagues
(d) Pick up vital from the tririal many things

37. Present value of money is equal to

(a) $\frac{FV}{(1+r)^n}$ (b) $FV(1+r)^n$

(c) $FV(1-r)^n$ (d) $\frac{FV}{(1-r)^n}$

38. Process layout is employed for

(a) Batch Production (b) Continuous Production

(c) Mass Production (d) Job Shop Production

39. Frederick W. Taylor introduced a system of working known as

(a) Line organisation (b) Line and staff organisation

(c) Functional organisation (d) Effective organisation

40. In inventory control, the economic order quantity is the

(a) Optimum lot size (b) Highest level of inventory

(c) Capacity of a plant to produce (d) Quantity in the warehouse

41. The term 'value' in value engineering refers to

(a) Total cost of the product (b) Selling price of the product

(c) Utility of the product (d) Depreciation value

42. The tilting of the front wheel away from the vertical is called

(a) Caster (b) Toe-in

(c) Camber (d) Toe-out

43. The function of a shackle with a leaf spring is to

(a) Allow pivoting of spring end (b) Allow spring length to change

(c) Control side (d) Control rear torque

44. When the clutch is engaged, the spring pressure clamps the friction plate between the pressure plate and

(a) Flywheel (b) Differential

(c) Reaction plate (d) Clutch pedal

45. The three forward speed and reverse gear transmission consist of three shafts and

(a) Three gears (b) Five Gears

(c) Eight gears (d) Ten Gears

46. In the differential, the crown wheel is attached to the
(a) Level Gear (b) Level pinion
(c) Differential Case (d) Propeller Shaft

47. The vehicle ride will be smooth and comfortable if
(a) Vehicle weight is kept minimum (b) Spring weight is kept minimum
(c) Unsprung weight is kept minimum (d) Driver weight is kept minimum

48. In a typical drive system, the clutch is best located
(a) Before the engine (b) On the road wheel
(c) Between the engine and gear bone (d) Between the differential wheels

49. Standard ground drill has a point angle of
(a) 90^0 (b) 120^0
(c) 98^0 (d) 118^0

50. A built - up edge in formed while machining
(a) Ductile materials at high speed (b) Ductile materials at low speed
(c) Brittle materials at high speed (d) Brittle materials at a low speed

51. Most of the metal cutting heat goes into the
(a) Moving Chip (b) Cutting Tool
(c) Work Metal (d) High Density

52. A good cutting tool should have
(a) High Specific Heat (b) Low Thermal Conductivity
(c) High Viscosity (d) High Density

53. A dynamometer is a device used for the measurement of
(a) Chip Thickness Ratio (b) Forces During Metal Cutting
(c) Wear of the Cutting Tool (d) Deflection of the Cutting Tool

54. The most widely used material for drills, taps and reamers is
(a) Low Alloy Carbon Steel (b) High Speed Steel
(c) Carbon Tool (d) Cemented Carbide

55. Abrasive material used in grinding wheel selected for grinding ferrous alloys is
(a) Sic (b) Diamond
(c) Al_2O_3 (d) Boron carbide

56. Which of following processes would remove least material ?
(a) Grinding (b) Lapping
(c) Honing (d) Super Finishing

57. GOI NC code is used to carry out the following function

(a) Rapid Motion (b) Circular motion

(c) Linear Interpolation (d) STOP

58. Which of the following in not a part of FMS ?

(a) AGV (b) Stand alone Robot

(c) Machine Tool (d) Inventory Control

59. The main function of ATC in the machining center is

(a) To change the tool from spindle to tool drum and vice versa

(b) To control the tool speed

(c) To control to too feed

(d) To load the components on the machine tool

60. Which of the following is not related to DNC ?

(a) The part programs can be shared to different machine tools

(b) The instructions can be sent to different machine tools

(c) Direct control of several NC Machine tools

(d) Direct control of several NC machine tools

61. Which of the following can be used to measure the dimensions directly ?

(a) Micrometer (b) Snap Gauge

(c) Pneumatic comparator (d) Go Gauge

62. Which of the following welding process results in the smallest heat affected gone ?

(a) Shield metal arc welding (b) Flat Plate

(c) Laser beam welding (d) Thermite Welding

63. The metal powder used in thermite welding of steel is

(a) Al (b) Cu

(c) Pb (d) W

64. Which one among the following welding processes uses non consumable electrode ?

(a) Gas metal arc welding (b) Submerged arc welding

(c) Gas tungsten arc welding (d) Flux coated arc welding

65. Light impurities in the molten metal are prevented from reaching the mould cavity providing

(a) Strainer (b) Button Well

(c) Skin bob (d) Large Gate

66. Chills are used in moulds to
(a) Achieve directional solidification
(b) reduce possibility of blow holes
(c) compressive strength to go through a maxima
(d) strength to go through a maxima

67. Which one of the following is not a property of a sand mould ?
(a) Permeability (b) collapsibility
(c) fluidity (d) strength

68. Negative allowance is provided on the pattern to take care of
(a) the distortion allowance (b) the draft allowance
(c) the machining allowance (d) the shake allowance

69. Which of the following materials require the largest shrinkage allowance pattern for casting
(a) Brass (b) Aluminium
(c) Cast iron (d) Plain Carbon

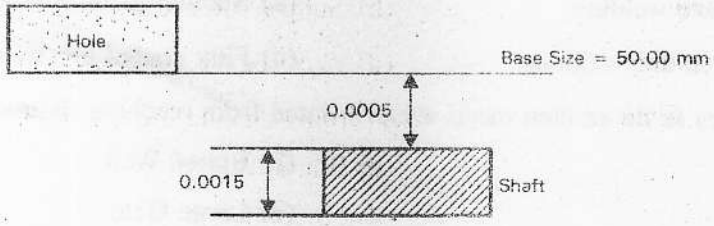
70. An expandable pattern is used in
(a) Slush Casting (b) Squeeze Casting
(c) Centrifugal Casting (d) Investment Casting

71. Blow holes are casting defects
(a) Which takes place from internal voids
(b) Which occur due to some sand shearing from the rope surface
(c) Which occur due to discontinuity in metal casting
(d) Caused by two streams of metals that are too cold to fuse properly.

72. True centrifugal casting
(a) Is used to ensure purity and density at extremities of a casting
(b) Is used to obtain high density and pure castings
(c) Uses a heavy cast iron mould to act as chill
(d) Is used to cast symmetrical objects

73. Expressing a dimension as (25 : 3) ± 0.05 mm is the case of
(a) Unilateral Tolerance (b) Bilateral Tolerance
(c) Limiting Dimension (d) Allowance Dimension

74. The tolerances on hole and shaft components are given below w.r.t base size



The minimum size of the shaft is equal to

(a) 50.001 mm (b) 49.9995 mm

(c) 50.005 mm (d) 49.998 mm

75. Same figure as above and same explanation

What is the type of fit ?

(a) Transition fit (b) Interference Fit

(c) Clearance fit (d) Allowance Fit

76. Corrosion resistance of steel is increased by addition of

(a) Chromium and Nickel

(b) Sulphur, phosphorus, lead

(c) Vanadium, Aluminium

(d) Tungsten, Molybdenum, Vanadium, chromium

77. Inconel is an alloy of

(a) Nickel, Chromium and Iron (b) Nickel, Copper

(c) Nickel, Chromium (d) Nickel, Zinc

78. Which of the following is better suited for heavier duty bearings ?

(a) White Metal (b) Phosphor bronze

(c) Monel Metal (d) Neimonic Alloys

79. The process in which steel is coated with a thin layer of phosphate is known as

(a) Phosphorising (b) Spheroidizing

(c) Anodising (d) Parkerising

80. Steels are primary designated according to

(a) Iron Content (b) Carbon Content

(c) Alloying Elements (d) Hardness

81. The value of Poisson's ratio for steel is between

(a) 0.01 to 0.1 (b) 0.23 to 0.27

(c) 0.25 to 0.33 (d) 0.4 to 0.6

82. The property of a material by virtue of which a body returns to its original shape after removal of the load is called

(a) Plasticity (b) Elasticity

(c) Ductility (d) Malleability

83. An elastic rod, 1m long, of negligible weight hangs downward from a support. In one case a load is applied on rod 20 cm below the support and in other case the same load is applied on rod at its bottom. The reactions at supports will be

(a) More in first case (b) Store in both cases

(c) More in second case (d) Data are not sufficient to determine same

84. Tension in a string is maximum at

(a) Left Support (b) Right Support

(c) Midway (d) Quarter Span

85. The maximum frictional force which comes into play when a body just begins to slide over another surface is called

(a) Limiting friction (b) Sliding friction

(c) Rolling friction (d) Kinematic friction

86. The intensity of stress which causes unit strain is called

(a) Unit Stress (b) Bulk modulus

(c) Modulus of rigidity (d) Modulus of elasticity

87. Hooke's law holds good upto

(a) Yield Point (b) Breaking Point

(c) Elastic Point (d) Plastic Point

88. Hunting occurs due to

(a) Over control by the governor (b) Poor control by the governor

(c) Faulty Governor (d) improperly designed governor

89. Two meshing gears have 3:1 gear ratio. If the smaller year has 12 teeth, the larger gear has

(a) 12 Teeth (b) 24 Teeth

(c) 36 Teeth (d) 4 Teeth

90. The distance between the adjacent meshing teeth of mating is called the

(a) Black Lash (b) Patch Line

(c) Clearance (d) Flank

91. Universal coupling is used to join two shafts

(a) Which have lateral misalignment (b) Whose axes intersect at small angle

(c) Which are not in exact alignment (d) Simplest type of rigid coupling

92. Initial tension in belts, when stationary is

(a) $T_1 - T_2$ (b) $\frac{T_2}{T_1}$

(c) $T_1 + T_2$ (d) $\frac{T_1 + T_2}{2}$

93. Which one of the following statement is false about flywheel

(a) flywheel smoothens the cyclic fluctuation of speed when delivering constant output h.p.

(b) It has no influence on the mean speed of the prime mover

(c) It takes care of output fluctuations and controls input accordingly

(d) It has no influence over the varying load demand on prime mover

94. The rest diameter of a screw thread is same as

(a) Major Diameter (b) Minor Diameter

(c) Pitch diameter (d) Core Diameter

95. When two springs are in series (having stiffness K) the equivalent stiffness will be

(a) k (b) k/2

(c) 2 k (d) k/4

96. In the thick cylinders, the radial stress across the thickness of cylinder is

(a) Zero at outside and maximum at inside

(b) Minimum at outside and maximum at inside

(c) uniform throughout

(d) unpredictable

97. Maximum horse power is transmitted by a belt drive when its velocity is such that the tight side driving tension in belt is equal to

(a) centrifugal tension (b) 2 times centrifugal tension

(c) 3 times centrifugal tension (d) 4 times centrifugal tension

98. Which type of gear will be used for non - parallel and non - intersecting shafts ?

(a) Helical Gears (b) Hypoid Gears

(c) Worm Gears (d) Herring Bone Gears

99. The adiabatic equation of a perfect gas is

(a) P^V = constant (b) $P^{V\,r}$ = constant

(c) $Vp^{\,r}$ = constant (d) $Pv^{1/r}$

100. According to first law of thermodynamics

(a) mass and energy are mutually convertible

(b) heat and work are mutually convertible

(c) mass and light are mutually convertible

(d) carnot engine is most efficient

KEY

1. d	2. a	3. c	4. b	5. c	6. b	7. b	8. c	9. d	10. a
11. c	12. c	13. b	14. a	15. b	16. c	17. b	18. d	19. d	20. d
21. d	22. a	23. c	24. b	25. a	26. c	27. b	28. d	29. b	30. b
31. b	32. a	33. c	34. d	35. -	36. d	37. a	38. a	39. c	40. a
41. c	42. c	43. b	44. a	45. c	46. b	47. c	48. c	49. d	50. b
51. a	52. a	53. b	54. b	55. c	56. d	57. c	58. d	59. a	60. c
61. a	62. c	63. a	64. c	65. c	66. a	67. c	68. d	69. d	70. d
71. a	72. d	73. b	74. b	75. c	76. a	77. a	78. a	79. d	80. b
81. c	82. b	83. b	84. c	85. a	86. d	87. c	88. a	89. c	90. a
91. b	92. d	93. c	94. a	95. b	96. b	97. c	98. c	99. b	100. b