

024/2020

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. High Specific Speed of a pump implies it is:
(A) Centrifugal Pump (B) Mixed Flow Pump
(C) Axial Flow Pump (D) None of the above
2. Which one of the following is the unit of mass density?
(A) Kg /M³ (B) Kg/M²
(C) Kg/M (D) Kg /Ms
3. Resistance to fatigue of a material is measured by:
(A) Young's Modulus (B) Endurance limit
(C) Elastic Limit (D) Coefficient of Elasticity
4. In steel plant the most important system for materials handling is:
(A) Conveyors (B) Cranes and Hoists
(C) Trucks (D) Locos
5. The following is indirect cost of accident:
(A) Money paid for treatment of worker
(B) Compensation paid to worker
(C) Cost of lost time of injured worker.
(D) All of the above
6. Gear box is used:
(A) To produce torque (B) For speed reduction
(C) To obtain variable speeds (D) To increase efficiency of system
7. The pressure at a point in a fluid will not be same in all the directions when the fluid is:
(A) Moving (B) Viscous
(C) Viscous and Static (D) Viscous and Moving
8. For manometer, a better liquid combination is one having:
(A) Higher Surface Tension (B) Lower Surface Tension
(C) Surface Tension is No Criterion (D) High Density and Viscosity

A

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[P.T.O.]

9. The steam leaves the nozzle at a:
- (A) High Pressure and Low Velocity (B) High-Pressure and High Velocity
(C) Low Pressure and Low Velocity (D) Low Pressure and High Velocity
10. Arc-welding uses following electric supply:
- (A) A.C. (B) D.C.
(C) Both AC and DC (D) Spiral Waveform
11. Angle of twist is directly proportional to:
- (A) Shear Modulus (B) Polar Moment of Inertia
(C) Torque (D) All of these
12. The deflection of a cantilever beam under load W is 8. If its width is halved, then the deflection under load W will be:
- (A) 28 (B) 8/2
(C) 48 (D) 8/4
13. Bell metal contains:
- (A) 70% Copper and 30% Zinc
(B) 90% Copper and 10% Tin
(C) 85-92% Copper and rest tin with little lead and Nickel
(D) 70-75% Copper and Rest Tin
14. Which of the following layouts is suited to job production:
- (A) Process Layout (B) Product Layout
(C) Fixed Position Layout (D) Plant Layout
15. In V-belt drive, belt touches:
- (A) At Bottom (B) At Sides Only
(C) Both at Bottom and Sides (D) Could touch anywhere
16. A safety programme consists of:
- (A) Three E's (B) Four E's
(C) Five E's (D) Six E's
17. The most commonly used flame in gas welding is:
- (A) Neutral (B) Oxidising
(C) Carburising (D) All of the above

18. Bernoulli's equation cannot be applied when the flow is:
- (A) Rotational (B) Turbulent
(C) Unsteady (D) All of the above
19. The objective of ISO-9000 family of quality management is:
- (A) Customer Satisfaction (B) Employee Satisfaction
(C) Skill Enhancement (D) Environmental issues
20. Basic shaft is one:
- (A) Whose Upper Deviation is Zero
(B) Whose Lower Deviation is Zero
(C) Whose lower as well as Upper Deviations are zero
(D) Does not exist
21. Ductility of a material can be defined as:
- (A) Ability to undergo large permanent deformations in compression
(B) Ability to undergo large permanent deformations in tension
(C) Ability to recover its original form
(D) All of the above
22. Which of the following is a mechanism for mechanized movements of the carriage along longitudinal axis?
- (A) Cross-Slide (B) Compound Rest
(C) Apron (D) Saddle
23. If the Reynolds number is less than 2000, the flow in a pipe is:
- (A) Turbulent (B) Laminar
(C) Transition (D) None of the above
24. The degree of perfection used in instruments, the methods and the observations, is known as:
- (A) Precision (B) Accuracy
(C) Least Count (D) Efficiency
25. The percentage of carbon in grey iron castings usually varies between:
- (A) 0.5 To 1% (B) 1-2%
(C) 2.5 To 4.5% (D) 5 - 7%

26. The total pressure force on a plane area is equal to the area multiplied by the intensity of pressure at the centriod, if:
- (A) The area is horizontal (B) The area is vertical
(C) The area is inclined (D) All of the above
27. A Body Floats In Stable Equilibrium:
- (A) When its metacentric height is zero
(B) When the metacentre is above
(C) When its e.g. is below its center of buoyancy
(D) Metacentre has nothing to do with position of e.g. for determining stability
28. The process of beveling sharp ends of a work piece is called as:
- (A) Grooving (B) Chamfering
(C) Facing (D) Knurling
29. Motion of a liquid in a volute casing of a centrifugal pump is an example of:
- (A) Rotational Flow (B) Radial
(C) Forced Spiral Vortex Flow (D) Spiral Vortex Flow
30. Cold Working:
- (A) Increases the fatigue strength
(B) Decreases the fatigue strength
(C) Has no influence on fatigue strength
(D) Alone has no influence on fatigue strength
31. The piston and the _____ is connected by a connecting rod:
- (A) clutch (B) crankshaft
(C) cylinder head (D) flywheel
32. The vibration damper on a crankshaft reduces the _____ vibrations:
- (A) torsional (B) forced
(C) damped (D) all of these
33. The exhaust valve usually starts opening:
- (A) at BDC (B) before BDC
(C) at TDC (D) before TDC

34. The purpose of the thermostat is to keep the engine:
- (A) at desired pressure (B) cool
(C) hot (D) at desired temperature
35. What is the property of lubricating oil to resist internal deformation due to mechanical stresses?
- (A) adhesiveness (B) fire point
(C) viscosity (D) specific gravity
36. _____ is used to reduce surging of fuel on account of sudden braking or cornering in a fuel tank.
- (A) fuel filter (B) tube
(C) drain plug (D) baffle plates
37. _____ is the phenomenon of supplying air fuel mixture to the engine above the atmospheric pressure.
- (A) Direct draft (B) Supercharging
(C) Direct charging (D) Indirect charging
38. How many pumps are used in thermo syphon water cooling system?
- (A) two (B) three
(C) four (D) no pump
39. The specific advantage of a cone clutch is:
- (A) normal force equal to axial force
(B) normal force is larger than axial force
(C) normal force is less than axial force
(D) none of the above
40. Friction plate is held between:
- (A) flywheel and gear box (B) pressure plate and release bearing
(C) pressure plate and flywheel (D) none of the above
41. Which shaft is used to transfer power from engine to gearbox:
- (A) Clutch shaft (B) Lay shaft
(C) Drive shaft (D) Main shaft

42. The fluid coupling is most efficient as drive ratio approaching to:
- (A) 3 : 1 (B) 1 : 3
(C) 1 : 6 : 1 (D) 1 : 1
43. Name the driving member of a torque converter:
- (A) stator (B) free wheel
(C) turbine (D) impeller
44. What is two leading shoe in brake system?
- (A) both shoe expand in the direction of the rotation of the drum
(B) both shoe against the direction of the rotation of the drum
(C) leading shoe expands on the direction of the rotation of the drum
(D) trailing shoe expands on the direction of the rotation of the drum
45. Presents of metal chips in the oil, drained from the gear box indicates:
- (A) Clutch slippage (B) Dislocated synchronizer
(C) Broken gear teeth (D) All of the above
46. Valve clearance is inspected by:
- (A) micrometre (B) dial gauge
(C) vernier caliper (D) feeler gauge
47. The device which measures the concentration of oxygen in exhaust gas:
- (A) TP sensor (B) Lambda sensor
(C) MAF sensor (D) Temperature sensor
48. In MPFI system fuel is supplied to the cylinder by:
- (A) Electronic actuator (B) Diesel pump
(C) AC mechanical pump (D) Rotary pump
49. CRDi means:
- (A) Combined Rail Direct Inlet
(B) Common Rail Direct Injection
(C) Common Relay Diesel Injection
(D) Common Rail Diesel Injection

50. Clutch dragging is noticeable:
- (A) at high speed (B) at road speed
(C) when shifting gears (D) during acceleration
51. In a single cylinder engine, the volume of the cylinder (including the combustion chamber), when the piston is at TDC and BDC are in the ratio 1:14. The compression ratio of the engine will be:
- (A) 13 : 1 (B) 14 : 1
(C) 15 : 1 (D) None of these
52. In a four stroke, compression ignition engine, theoretically for how degrees of crank rotation will both inlet and outlet valve be closed?
- (A) 90 (B) 180
(C) 270 (D) 360
53. In a power tiller the power from engine is transmitted to clutch by using:
- (A) Belt and pulley (B) Chain and sprocket
(C) Gears (D) Cardan shaft
54. Which of the following type of transmission gear box is used in power tillers?
- (A) Sliding Mesh
(B) Constant Mesh
(C) Continuously Variable Transmission (CVT)
(D) Synchromesh
55. In a four stroke cycle engine, the speed ratio between crankshaft and camshaft is:
- (A) 1 : 1 (B) 1 : 2
(C) 2 : 1 (D) None of these
56. Differential lock in tractors can be used for:
- (A) Making a sharp turn
(B) Reducing the PTO speed
(C) Giving equal traction to both rear wheels
(D) Locking rear wheels
57. In a dry type single plate mechanical clutch, which of the following statement is true when the clutch pedal is depressed?
- (A) Flywheel stops rotation (B) Clutch plate stops rotation
(C) Pressure plate stops rotation (D) Clutch cover stops rotation

58. In a double drop type steering mechanism, which of the following is to be adjusted for changing toe-in or toe-out?
- (A) Steering wheel (B) Steering gear arm
(C) Front axle (D) Steering drag link
59. If the draft control of the hydraulic system in tractor is engaged, which of the following statement is correct?
- (A) Speed of operation varies according to soil resistance
(B) Depth of operation varies as per soil resistance
(C) The draft on implement will be varied
(D) Constant depth of operation is obtained
60. As per IS 4468 – 1977, the three point hitch systems are categorized based on:
- (A) Maximum drawbar hp
(B) Specific fuel consumption
(C) Wheel base of tractor
(D) PTO type
61. The processes adding additional weight to rear wheels in tractor for improving traction is called:
- (A) Balancing (B) Alignment
(C) Draft control (D) Ballasting
62. In an engine push rod is located between:
- (A) Valve and valve spring (B) Valve and rocker arm
(C) Tappet and rocker arm (D) None of these
63. The specific fuel consumption of an tractor engine is:
- (A) Fuel consumed per unit time
(B) Fuel consumed per unit power
(C) Fuel consumed per unit time per unit power
(D) Fuel consumed per unit area
64. In a three cylinder four stroke engine, the successive power strokes in different cylinders will differ by _____ degrees of crank shaft rotation.
- (A) 120 (B) 180
(C) 240 (D) 300

65. Which of the following will be present in diesel engine?
 (A) Spark plug (B) Carburetor
 (C) Fuel injector (D) None of these
66. The Government of Kerala undertaking company manufacturing Power Tillers is:
 (A) VFPCCK (B) VST
 (C) KAICO (D) KAMCO
67. Tillage is the term referring to:
 (A) Increasing moisture content in soil (B) Increasing bearing strength of soil
 (C) Mechanical manipulation of soil (D) Cultivation in soil
68. The function of land side in mould board plough is:
 (A) To take the side thrust and to balance (B) To increase the operating width
 (C) To increase the operating depth (D) To ensure proper breaking of soil
69. Increasing vertical suction in mould board plough will:
 (A) Decrease width of ploughing (B) Increase width of ploughing
 (C) Decrease depth of ploughing (D) Increase depth of ploughing
70. The total force extorted on plough by the power source is called:
 (A) Draft (B) Pull
 (C) Thrust (D) None of these
71. Which of the following is not a function of secondary tillage?
 (A) To increase the depth of ploughing (B) To make soil ready for planting
 (C) To make the surface smooth and even (D) To reduce the size of clods
72. Gang angle of a single action disc harrow is the angle between:
 (A) Gang axis and line perpendicular to direction of travel
 (B) Between two gangs measured at front side
 (C) Gang axis and line parallel to direction of travel
 (D) Between two gangs measured at rear side
73. In a tractor operated seed drill, the power for rotating the seed metering shaft is obtained from:
 (A) Tractor tyres (B) Ground wheel
 (C) PTO of tractor (D) None of these

74. Among the following sprayer nozzles, which one will produce finer droplets compared to others:
- (A) Flat fan (B) Solid cone
(C) Flood jet (D) Hollow cone
75. Which of the following type cutter bars are used in vertical conveyor reapers?
- (A) Rotary Type (B) Oscillating type
(C) Reciprocating type (D) None of these
76. Which of the following is not a component of header unit of a combine harvester?
- (A) Reel / Crop divider (B) Cutter bar
(C) Platform auger (D) Threshing cylinder
77. In a combine harvester, the ratio of peripheral speed of reel to forward speed is known as:
- (A) Velocity ratio (B) Reel index
(C) Speed index (D) Cranking ratio
78. A 2.5 m width combine harvester with an average operating speed of 4 kmph was used harvest crop in 6 ha of land. If the field efficiency of the machine is 75%, the time taken to complete the work will be:
- (A) 6 hours (B) 8 hours
(C) 10 hours (D) 12 hours
79. Which of the following type of threshing cylinder will not chop the straw?
- (A) Wire loop (B) Hammer mill
(C) Syndicator (D) Spike tooth
80. In a thresher more seed damage will be caused, if:
- (A) Concave clearance is increased (B) Cylinder speed is increased
(C) Rate of feeding is increased (D) Aspirator speed is increased
81. The equipment or machine used for making harvested fodder crop into smaller pieces is:
- (A) Mower (B) Reaper
(C) Thresher (D) Chaff cutter
82. Which of the following type of seedlings are used in commercially available rice transplanters in the state?
- (A) Mat type seedlings (B) Pre germinated seeds
(C) Washed root type seedlings (D) None of the above

83. Type of bearing used for supporting the discs of a standard disc plough is:
 (A) Deep groove ball bearing (B) Tapered roller bearing
 (C) Thrust bearing (D) Bush bearing
84. Number springs fitted to each tine in a spring loaded tine cultivator is:
 (A) 1 (B) 2
 (C) 3 (D) 4
85. In Power harrow, the blades rotate about _____ axis.
 (A) Horizontal (B) Transverse
 (C) Vertical (D) None of the above
86. The gear box of a tractor operated rotavator consists of:
 (A) Bevel gears (B) Spur gears
 (C) Worm gears (D) None of these
87. If the seed rate of a seed drill with fluted roller mechanism was found higher than the recommended, how it can be corrected:
 (A) Decreasing the quantity of seed in hopper
 (B) Increasing the operating speed
 (C) Decreasing exposed length of fluted roller
 (D) Reducing the operating speed
88. In power tillers the steering of the machine is achieved by:
 (A) Steering wheels (B) Steering Clutch
 (C) Steering levers (D) Manually applying force
89. The function of Straw walker in combine harvester is:
 (A) To feed the crop to threshing drum
 (B) To bundle straw
 (C) To separate grain from chaff and to convey chaff to rear
 (D) To clean the grain
90. The machine / equipment used to collect straw from field and to make it bundles is:
 (A) Straw combine (B) Baler
 (C) Straw Reaper (D) Mower
91. Which of the following are employed in mould board plough to cut a furrow slice ahead of plough bottom and to cut trashes?
 (A) Coulter (B) Jointer
 (C) Gauge wheel (D) Furrow wheel

92. The power actually delivered by a tractor to pull or move an implement at uniform speed is called:
- (A) Break horse power (B) PTO hp
(C) Indicated horse power (D) Drawbar horse power
93. In rice hullers, hulling is achieved by passing rice between two rollers rotating:
- (A) At same speeds one clockwise and other anticlockwise
(B) At same speed clockwise
(C) At different speeds one clockwise and other anticlockwise
(D) At same speed anticlockwise
94. Which of the following pump can be used for high discharge at low heads?
- (A) Centrifugal pump (B) Vertical turbine pump
(C) Jet pump (D) Propeller pump
95. Puddlers are used in paddy fields for:
- (A) Churning of soil in presence of excess water
(B) Breaking clods in the field
(C) Mixing vegetative residues with soil
(D) Creating uniform slope in field
96. The material with which the tines of cultivators are made is:
- (A) Mild steel (B) Spring steel
(C) Grey cast iron (D) Carbon steel
97. Ball bearing 6204 is suitable for shaft of radius:
- (A) 15 mm (B) 17 mm
(C) 20 mm (D) 25 mm
98. The type of farm implements, which is pulled and guided from a single hitch point and never completely support by tractor are called:
- (A) Trailed implements (B) Mounted implements
(C) Semi-mounted implements (D) Self-propelled implements
99. The standard speed of 6 straight splined PTO shaft of tractors is:
- (A) 500 ± 10 (B) 540 ± 10
(C) 1000 ± 10 (D) 1000 ± 25
100. In side mounted mower, for proper alignment the cutter bar is provided a lead equal to:
- (A) 4 mm per m length of cutter bar (B) 4 cm per m length of cutter bar
(C) 2 mm per m length of cutter bar (D) 2 cm per m length of cutter bar

SPACE FOR ROUGH WORK

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