राष्ट्रीय प्रौद्योगिकी संस्थान वरंगल
वरंगल – 506004, तेलंगाना, भारत
NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL
WARANGAL – 506004, Telangana, INDIA

QUESTION BOOKLET – ADVANCED TEST FOR RECRUITMENT TO TECHNICAL CADRE POSTS

Post:	Technician
Department	Mechanical Engineering
Advt.:	01/2026 dated 09.01.2026
Date of Exam:	20-08-2026
Duration:	2 Hours
Total Marks:	200 (100 Q X 2 M each)
No. of Questions:	100 (MCQs)
Negative Marking:	1/4th mark for every wrong answer

INSTRUCTIONS TO THE CANDIDATES

1. This is an Advanced Test comprising 100 Multiple Choice Questions (MCQs), to be conducted in MCQ mode only.
2. The duration of the test is 2 hours.
3. Answers must be marked on the OMR Answer Sheet using a blue or black ballpoint pen only. Use of pencils is not permitted.
4. Candidates must write/mark their Roll Number, Post applied for, and other required details in the designated space on the OMR Answer Sheet.
5. Answers marked on the Question Booklet or on any sheet other than the OMR Answer Sheet will not be evaluated.
6. For each question, darken the circle corresponding to the correct answer completely and clearly on the OMR Answer Sheet.
7. Each question carries equal marks. There will be a negative marking of ¼ th mark for every wrong answer. No marks will be deducted for questions not attempted.
8. Mark only one answer for each question. Marking more than one circle for a question will be treated as a wrong answer.
9. Overwriting, cutting, or erasing that leaves the OMR Answer Sheet unclear may result in the answer not being evaluated.
10. No candidate shall leave the examination hall during the test.
11. Any attempt to copy, use unfair means, or communicate with others will result in immediate disqualification.
12. The use of electronic gadgets, calculators, mobile phones, smart watches, or any written/printed material is strictly prohibited.
13. Rough work, if any, should be done only on the separate sheet provided for the purpose.
14. Ensure that the OMR Answer Sheet is duly filled and handed over to the Invigilator before leaving the examination hall.
15. Failure to submit the OMR Answer Sheet will result in cancellation of candidature.
16. All material provided, including rough sheets, must be returned before leaving the examination hall.

1. Which tool is using for checking the angles in carpentry?
   (A) Marking Gauge
   (B) Mortise Gauge
   (C) Bevel square
   (D) Tri Square

2. The purpose of seasoning the wood is
   (A) to ripen the wood
   (B) to reduce the moisture content
   (C) for light weight
   (D) to feel out the bark

3. The file is used in carpentry for finishing
   (A) Flat file
   (B) Rasp file
   (C) Round file
   (D) Mortise gauge

4. The chisel is used for deep cutting operations
   (A) Firmer chisel
   (B) Paring chisel
   (C) Mortise chisel
   (D) Firmer gauges

5. V-block is used to hold
   (A) square rods
   (B) round objects
   (C) oval shapes
   (D) eccentric shape

6. Which of the following tool is used to finishing the hole?
   (A) Tap
   (B) Drill bit
   (C) Reamer
   (D) Boring bar

7. Which of the following tool is used to cut little bit amount of material?
   (A) Hack saw
   (B) File
   (C) Chisel
   (D) Try square

8. Which is the most commonly used material for making patterns?
   (A) Aluminum
   (B) Wood
   (C) Brass
   (D) Iron

9. Through holes in an object can be made in casting by
   (A) Cores
   (B) Cheeks
   (C) Vent rods
   (D) Spikes

10. The tool used for smoothening the surfaces of the mould is
   (A) Rammer
   (B) Trowel
   (C) Riddle
   (D) Vent rod

11. The tool used to blow off loose sand from the mould is
   (A) Bellow
   (B) Trowel
   (C) Slick
   (D) Vent rod

12. A taper provided on the pattern for its easy and clean withdrawal from the mould is known as
   (A) machining allowance
   (B) draft allowance
   (C) shrinkage allowance
   (D) distortion allowance

13. The cutting tool is made of
   (A) high carbon steel
   (B) high speed steel
   (C) mild steel
   (D) medium carbon steel

14. Three jaw chuck is also called as
   (A) independent chuck
   (B) magnetic chuck
   (C) self-centering chuck
   (D) none of the above

15. Lead screw is mainly used for
(A) thread cutting
(B) turning
(C) automatic turning
(D) none of the above

16. Lathe is a machine tool to remove the material by making
(A) work piece rotating
(B) tool rotating
(C) both of the above
(D) none of the above

17. Which one of the following is not a work holding device?
(A) Face plate
(B) Mandrel
(C) Carriage
(D) Angle plate

18. The depth of cut is expressed in
(A) mm
(B) mm/rev
(C) m/min
(D) rpm

19. Which of the following operations can be regarded as chip less operation?
(A) boring
(B) reaming
(C) milling
(D) knurling

20. The term hogging is used in
(A) facing operation
(B) turning operation
(C) parting operation
(D) none of the above

21. For a given work piece material and tool material combination, which of the following operation makes use of high cutting speed
(A) turning
(B) knurling
(C) thread cutting
(D) parting

22. The least count of micrometer is
(A) 0.1 mm
(B) 0.05 mm
(C) 0.01 mm
(D) 0.02 mm

23. Which of the following instrument is used to measure the angles
(A) bevel protractor
(B) sine bar
(C) dial gauge
(D) both (A) & (B)

24. Which of the following instrument is used for machine alignment?
(A) Bevel protractor
(B) Vernier depth gauge
(C) Vernier caliper
(D) Dial gauge

25. The hole and shaft sizes are $50_{-0.065}^{-0.026}$ and $50_{-0.011}^{0.00}$ respectively. The type of fit obtained with above shaft and hole assembly is
(A) clearance fit
(B) interference fit
(C) transition fit
(D) loose fit

26. Sine bar is a tool used to measure
(A) length
(B) thickness
(C) angle
(D) internal diameter

27. In micrometer screw gauge circular scale is marked on
(A) Thimble
(B) Rachet
(C) Stud
(D) Sleeve

28. Pick the odd one out in the case of a milling machine.
(A) Knee
(B) Column
(C) Split Nut
(D) Spindle

29. Which mechanism decrease the nonproductive time in Shaper?
(A) clamper box mechanism
(B) quick return mechanism
(C) saddle mechanism
(D) four bar Mechanism

30. Shaper vice can be raised up and lower down with the help of a
(A) elevating screw
(B) lead screw
(C) set screw
(D) saddle screw

31. Which of the following tool is used for internal threading?
(A) Die
(B) Tap
(C) Reamer
(D) Drill bit

32. Small work pieces can be machined productively on --- machine.
(A) Shaper
(B) Slotter
(C) Planer
(D) none of the above

33. Machining is a material ---.
(A) shaping process
(B) removal process
(C) regenerative process
(D) joining process

34. Lancing means
(A) making series of holes in sheet metal
(B) making slots in sheet
(C) cutting sheet through some length and bending it to one side
(D) none of the above

35. For coining process what is the most desirable property?
(A) toughness
(B) malleability
(C) ductility
(D) resilience

36. The product obtained after compaction in powder metallurgy is known as
(A) sintering
(B) compacting
(C) briquette
(D) all of the above

37. Which metal forming process involves a combination of tensile and compressive stresses?
(A) forging
(B) rolling
(C) wire drawing
(D) blanking

38. The solder wire is made-up of the following elements:
(A) Zinc & Lead
(B) Tin & Zinc
(C) Lead & Bronze
(D) Lead & Tin

39. Welding shield is used to
(A) protect head
(B) protect eyes
(C) protect hands
(D) none of the above

40. The colour of acetylene cylinder is
(A) Maroon
(B) Black
(C) Red
(D) Blue

41. The internal energy of an ideal gas is a function of
(A) temperature and pressure
(B) volume and pressure
(C) entropy and pressure
(D) temperature only

42. Entropy is a
(A) path function
(B) point function
(C) property independent function
(D) neither path nor point function

43. On a P-v diagram the triple point looks like a
(A) point
(B) line
(C) triangle
(D) curve

44. A gas turbine cycle with infinitely large number of stages during compression and expansion leads to
(A) Stirling cycle
(B) Atkinson cycle
(C) Ericsson cycle
(D) Brayton cycle

45. Enthalpy of combustion of a fuel is obtained directly in a bomb calorimeter burning at
(A) constant pressure
(B) constant temperature
(C) constant volume
(D) adiabatic process

46. In the window air conditioner, the expansion device used is
(A) capillary tube
(B) thermostatic expansion valve
(C) automatic expansion valve
(D) float valve

47. The sensible heat factor for an auditorium is generally kept as
(A) 0.4
(B) 0.7
(C) 1.0
(D) 1.5

48. Hot milk at 65°C is contained in a thin metal tumbler. Which of the following method(s) will cool milk rapidly
(A) stir the milk with a spoon when tumbler is kept in air at 25°C
(B) place the tumbler in a larger vessel containing water at 25°C
(C) place the tumbler in a larger vessel containing water at 25°C and move the tumbler in water
(D) all of the above will give same rate of cooling

49. Grashof number signifies the ratio of
(A) inertia force to viscous force
(B) buoyancy force to viscous force
(C) buoyancy force to inertia force
(D) inertial force to surface tension force

50. Fins are made as thin as possible to
(A) reduce total weight
(B) accommodate a greater number of fins
(C) improve flow of coolant around the fin
(D) increase the width for same profile area

51. A satellite floats in deep space with very high velocity. It will continuously lose heat by
(A) convection
(B) conduction and convection
(C) radiation
(D) radiation and convection

52. Pressure cap is used in a car to maintain constant pressure at high altitudes in
(A) radiator
(B) fuel reservoir
(C) lubrication oil sump
(D) brake oil sump

53. When the air-fuel mixture is lean
(A) efficiency is less
(B) power output is less
(C) maximum temperature and pressure are higher
(D) all of the above

54. In steam and other vapour cycles, the process of removing non-condensables is called
(A) scavenging process
(B) deaeration process
(C) exhaust process
(D) condensation process

55. An economizer in a steam generator performs the function of
(A) preheating the combustion air
(B) preheating the feed water
(C) preheating the input fuel
(D) raising the temperature of steam

56. A power plant which uses a gas turbine followed by a steam turbine for power generation is called
(A) topping cycle
(B) bottom cycle
(C) generation cycle
(D) combined cycle

57. Kaplan turbine is
(A) a high head mixed flow turbine
(B) a low head axial flow turbine
(C) an outward flow reaction turbine
(D) an impulse inward flow turbine

58. A turbomachine is a device used to convert
(A) fluid energy to mechanical energy
(B) mechanical energy to hydraulic energy
(C) mechanical in to electrical energy
(D) both (A) and (B)

59. As per common design practice, the three type of hydraulic turbines, in descending order of flow rate, are
(A) Francis, Kaplan, Pelton
(B) Pelton, Kaplan, Francis
(C) Pelton, Francis, Kaplan
(D) Kaplan, Francis, Pelton

60. The positive displacement rotary compressor is
(A) roots blower
(B) vane compressor
(C) lobe compressor
(D) all of the above

61. In a centrifugal compressor, the pressure ratio can be increased by
(A) decreasing the tip speed
(B) increasing the tip speed
(C) raising the inlet temperature
(D) decreasing the tip speed and raising the inlet temperature

62. The incorrect statement about buoyancy force is
(A) it always acts vertically upwards
(B) it is equal to weight of fluid displaced by solid body
(C) it acts through the centre of gravity of displace volume
(D) none of the above

63. A fluid is defined as a substance that
(A) has same shear stress at all points
(B) can deform indefinitely under the action of the smallest shear force
(C) has small shear stress in all directions
(D) is practically incompressible

64. Poise is the C.G.S. unit of
(A) kinematic viscosity
(B) dynamic viscosity
(C) both (A) & (B)
(D) none of the above

65. The dimensionless number defined by the ratio of inertial force to viscous force is called
(A) Mach number
(B) Weber number
(C) Froude number
(D) Reynolds number

66. Properties of cohesion & adhesion in addition to surface tension result in
(A) compressibility
(B) capillarity
(C) viscosity
(D) density

67. The continuity equation in fluid mechanics is mathematical statement embodying the principle
(A) conservation of energy
(B) conservation of mass
(C) conservation of momentum
(D) none of the above

68. The difference between the total head line and the hydraulic grade line represents
(A) the velocity head
(B) the piezometric head
(C) the pressure head
(D) the elevation head

69. The shear stress in turbulent flow is mainly due to
(A) heat transfer
(B) mass transfer
(C) momentum transfer
(D) all of the above

70. Equations of viscous fluid motion are analyzed by
(A) Euler's equations
(B) Navier-Stokes equation
(C) Bernoulli equations
(D) Hagen-Poiseuille equations

71. The dimensions of the four links in a four bar mechanism are 40,60,80,90 cm respectively. If it is a crank-rocker mechanism, the length of the crank is
(A) 40
(B) 60
(C) 80
(D) 90

72. Which of the following is true for involute gears?
(A) interference is inherently absent
(B) variation in centre distance of shafts increases radial force
(C) a convex flank is always in contact with concave flank
(D) pressure angle is constant throughout the teeth engagement

73. A stone of mass **m** at the end of a string of length **l** is whirled in a vertical circle at a constant speed. The tension in the string will be maximum, when the stone is
(A) at the top of the circle
(B) halfway down from the top
(C) quarter-way down from the top
(D) at the bottom of circle

74. If **F** is controlling force, **r** is radius of rotation for governing balls and **a**, **b** are constants, the governor becomes isochronous, when
(A) $F = ar + b$
(B) $F = ar - b$
(C) $F = ar^2 + b$
(D) $F = ar$

75. For high-speed engines, the follower should move with
(A) uniform velocity
(B) simple harmonic motion
(C) uniform acceleration and retardation
(D) cycloidal motion

76. A simple spring mass vibrating system has a natural frequency of **N**. If the spring stiffness is halved and the mass is doubled, then the natural frequency will become
(A) N/2
(B) 2N
(C) 4N
(D) 8N

77. In reciprocating engines, primary forces
(A) are completely balanced
(B) are partially balanced
(C) are balanced by secondary forces
(D) cannot be balanced

78. Shear strain is defined as
(A) rate of change of angle
(B) change in angle between two planes
(C) change in angle between planes at right angles
(D) distortion of fibers

79. For engineering materials, Poisson's ratio lies between
(A) 0 and 1
(B) -1 and +1
(C) -1/2 and +1/2
(D) 0 and 1/2

80. If all the dimensions of a vertically suspended circular bar are doubled, then the maximum stress produced in it due to its own weight will
(A) become half
(B) be doubled
(C) remain unaltered
(D) be tripled

81. The shear force in a beam, which is subjected to pure positive bending is
(A) positive
(B) zero
(C) negative
(D) difficult to say

82. In which of the following, the centroid lies outside the section?
(A) Symmetrical I – Section
(B) T – Section
(C) Un symmetrical section
(D) Angle section

83. The shape of shear stress distribution diagram for a rectangular beam is
(A) Parabola
(B) Rectangle
(C) Hyperbola
(D) None

84. Torsional rigidity is
(A) also known as flexural rigidity
(B) the product of modulus of elasticity and moment of inertia
(C) the torque which develops unit twist per unit length
(D) the product of shear modulus and moment of inertia

85. Modulus of resilience is defined as
(A) resilience at elastic limit
(B) resilience at proportional limit
(C) resilience per unit volume
(D) resilience at ultimate stress

86. The shock resistance of steel is increased by adding
(A) Chromium
(B) Sulphur and Phosphorus
(C) Nickel and Chromium
(D) Silicon and Manganese

87. A rivet is specified by
(A) length of rivet
(B) head diameter
(C) length of tail
(D) shank diameter

88. Single plate clutch is used in
(A) four wheelers
(B) two wheelers
(C) mopeds
(D) applications where initial torque is high

89. The material used for friction lining is
(A) brass
(B) cast iron
(C) leather
(D) pressed asbestos

90. Spur gears are used for
(A) connecting intersecting shafts to transmit power
(B) connecting two parallel shafts to transmit power
(C) connecting skew shafts
(D) any orientation of shafts

91. In the stability of floating bodies, the stable equilibrium is attained if the meta centre (M) point _____ the centre of gravity (G).
(A) lies below
(B) coincides with
(C) lies above
(D) is parallel to

92. The centre of gravity of the coupler link in a 4-bar mechanism would experience
(A) no acceleration
(B) only linear acceleration
(C) only angular acceleration
(D) both linear and angular acceleration

93. Hardness of steel greatly improves with
(A) annealing
(B) cyaniding
(C) normalizing
(D) tempering

94. The prime circle of a cam is
(A) the circle with centre as the centre of cam axis and radius such that it passes through the pitch point
(B) the smallest circle drawn to the cam profile from the centre of rotation of a radial cam
(C) the smallest circle drawn to the pitch curve from the centre of rotation of cam
(D) the cam circle enclosing the cam profile

95. Which theory of failure will you use for aluminum under static loading
(A) Principal stress theory
(B) Principal strain theory
(C) Strain energy theory
(D) Maximum shear stress theory

96. Endurance strength is 100% for a component with
(A) machined surface
(B) hot rolled surface
(C) mirror finish
(D) ground finish

97. Mc Kee's equation is useful in finding
(A) Sommerfeld Number
(B) viscosity of oil
(C) minimum film thickness
(D) power lost in friction

98. In ball bearing operation, the type of failure may be
(A) bending
(B) crushing
(C) fatigue
(D) shear

99. Which of the following bearing is suitable for minimum radial space?
(A) Needle bearings
(B) Tapered roller bearing
(C) Spherical roller bearings
(D) Cylindrical roller bearing

100. Engagement speed in centrifugal clutch should be
(A) 50% of full speed
(B) 75% of full speed
(C) 90% of full speed
(D) 25% of full speed

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