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	Chemical Engineering
Advt.:	01/2026 dated 09.01.2026
Date of Exam:	21-08-2026
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. ……..deals with the relationship between forces and the resulting motion of bodies on which they act
   A. Statics
   B. Kinematics
   C. Kinetics
   D. Fluid Mechanics

2. Which of the following is the vector quantity?
   A. Mass
   B. Volume
   C. Density
   D. None of the above

3. The rotational tendency of a force is called
   A. Shear force
   B. Moment
   C. Centroid
   D. Couple

4. The principle of lever was developed by
   A. Archimedes
   B. Kelvin
   C. Watt
   D. Newton

5. The time taken by the bodies to regain original shape after compression, is known as
   A. Time of compression
   B. Time of restitution
   C. Time of collision
   D. Period of compact

6. When the coefficient of restitution (e) is zero, the bodies are
   A. Elastic to some extent
   B. Inelastic
   C. Perfect elastic
   D. Perfect elastic to some extent

7. Which of the following are used when the shafts are coaxial
   A. Belts
   B. Chains
   C. Gears
   D. Cluthes

8. .....belts have the best pulling capacity
   A. Leather
   B. Rubber
   C. Textile
   D. Balata

9. The ratio of tensions in case of a belt drive is given by
   A. $\frac{T_1}{T_2} = e^{\theta}$
   B. $\frac{T_1}{T_2} = e^{\mu\theta}$
   C. $\frac{T_1}{T_2} = e^{2\mu\theta}$
   D. $\frac{T_1}{T_2} = 2e^{\theta}$

10. A body moving around a fixed axis constitutes .....motion
   A. Plane
   B. Rotational
   C. Circular
   D. Rectilinear

11. One watt is equal to
   A. 1 N m / s
   B. 1 N/min
   C. 10 N/min
   D. 1000 Nm/s

12. In an irreversible process, there is a
   A. Loss of heat
   B. Gain of heat
   C. No loss of heat
   D. No gain of heat

13. One joule (J) is equal to
   A. 1 N m
   B. 1 N/m
   C. 10 N/min
   D. 1 N m /s

14. The gas which obeys kinetic theory perfectly is known as
   A. Monoatomic gas
   B. Diatomic gas
   C. Real gas
   D. Perfect gas

15. Second of law thermodynamics defines
    A. Heat
    B. Work
    C. Enthalpy
    D. Entropy

16. ..... number is relevant is transient heat condition.
    A. Reynolds
    B. Fourier
    C. Grashoff
    D. Prandtl

17. ..... will radiate heat to a large extent.
    A. Black polished surface
    B. White rough surface
    C. White polished surface
    D. Black rough surface

18. The wavelength for maximum emissive power is given by
    A. Kirchhoff's law
    B. Stefan Boltzman's law
    C. Fourier's law
    D. Wein's law

19. For infinite parallel planes with emissivity ε_1 and ε_2, the interchange factor for radiation from surface 1 to surface 2 is
    A. $1/ \varepsilon_1 + \varepsilon_2$
    B. $\varepsilon_1 + \varepsilon_2$
    C. $\varepsilon_1 - \varepsilon_2$
    D. $\varepsilon_1 \varepsilon_2 / (\varepsilon_1 + \varepsilon_2 - \varepsilon_1 \varepsilon_2)$

20. A body which partly absorbs and partly reflects but does not allow any radiation to pass through it is called
    A. specular
    B. grey
    C. opaque
    D. none of the above

21. What will happen if petrol is used in diesel engine?
    A. Black smoke will be produced
    B. Low power will be produced
    C. Higher knocking will occur
    D. Efficiency will be low

22. Compared to a diesel engine the compression ratio in petrol engine is kept low because
    A. engine design becomes simpler
    B. it provides fuel economy
    C. petrol engine is a light engine
    D. higher compression ratio (in petrol engine) would lead to pre-ignition of fuel

23. Compared to petrol engines, diesel engines require
    A. smaller flywheel
    B. bigger flywheel
    C. same size flywheel
    D. no flywheel

24. In a petrol engine.... gas gets exhausted out without burning and without transformation
    A. CO
    B. CO_2
    C. Nitrogen
    D. O_2

25. Scavenging is usually done to increase which of the following?
    A. power output
    B. fuel consumption
    C. thermal efficiency
    D. speed

26. How many numbers of drums in Benson steam boiler
    A. One
    B. Two
    C. Three
    D. Zero

27. How can incomplete combustion be best judged?
    A. By measuring CO in flue gases
    B. By measuring O_2 in flue gases
    C. By measuring temperature of flue gases at exit of furnace
    D. By measuring NOx in flue gases

28. Why is intercooling in multistage compressors done?
    A. To minimize the work of compression
    B. To cool the air at delivery
    C. To cool the air during compression
    D. To reduce the friction

29. The efficiency of chimney is approximately
    A. 80%
    B. 40%
    C. 20%
    D. 0.25%

30. The COP of a heat pump , for the same operating temperature limits, equals
    A. $(COP)_{ref}$
    B. $1 + (COP)_{ref}$
    C. $(COP)_{ref} - 1$
    D. $1 / (COP)_{ref}$

31. Tolerance produced by investment casting method in average work is
    A. +0.05mm
    B. +0.2mm
    C. 0.5mm
    D. +1mm

32. Draft on pattern for casting is
    A. Shrinkage allowance
    B. Identification number marked on it
    C. Taper to facilitate its removal from mould
    D. For machining allowance

33. Surface to be machined are marked on the pattern by the
    A. Black colour
    B. Yellow colour
    C. Red colour
    D. Blue colour

34. In general, the draft on casting is of the order of
    A. 1-5 m/s
    B. 5-10 m/s
    C. 10-15 m/s
    D. 15-20 m/s

35. Process of increasing the cross-section of a bar and reducing its length is called
    A. Spinning
    B. Upsetting
    C. Drawing Down
    D. Reaming

36. Multispot welding process is
    A. Seam welding
    B. Projection welding
    C. Thermit welding
    D. Percussion welding

37. In protection welding, diameter of the projection as compared to thickness of the sheet is approximately
    A. Half
    B. Equal
    C. 1.5 times
    D. Double

38. Welding process preferred for cutting and welding for non-ferrous metals is
    A. Inert gas arc welding
    B. MIG welding
    C. Submerged arc welding
    D. D.C. arc welding

39. In thermit welding, iron oxide and aluminium oxide are mixed in the proportion of
    A. 1:1
    B. 3:1
    C. 1:3
    D. None of the these

40. Material having lowest cutting speed is
    A. Cast Iron
    B. Bronze
    C. Aluminium
    D. High carbon steel

41. Quick return mechanism is an inversion of
    A. Four bar chain
    B. Single slider crank chain
    C. Double slider crank chain
    D. Crossed slider crank chain

42. In a reciprocating engines primary forces
    A. Are completely balanced
    B. Are partially balanced
    C. Are balanced by secondary forces
    D. Cannot be balanced

43. A system of masses rotating in different parallel planes is in dynamic balance if the resultant
    A. Force is equal to zero
    B. Couple is equal to zero
    C. Force and the resultant couple are both equal to zero
    D. Force is numerically equal to the resultant couple, but neither of them need necessarily be zero

44. An involute pinion and gear are in mesh. If both have the same size of addendum, then there will be an interference between the
    A. Tip of the gear tooth and flank of pinion
    B. Tip of the pinion and flank of gear
    C. Flanks of both gear and pinion
    D. Tip of both gear and pinion

45. A hartnell governor is governor of the
    A. Inertia type
    B. Pendulum type
    C. Centrifugal type
    D. Dead Weight type

46. In case of cam, the maximum value of the pressure angle is kept as
    A. 15°
    B. 20°
    C. 30°
    D. 45°

47. The rate of decay of oscillations is known as
    A. Logarithmic decrement
    B. Critical damping
    C. Damping coefficient
    D. Transmissibility

48. In simple harmonic motion, the acceleration is proportional to
    A. Angular velocity
    B. Length of pendulum
    C. Displacement
    D. Time period

49. Which of the following is used as a lubricant in a rope brake dynamometer?
    A. Water
    B. Oil
    C. Grease
    D. No lubricant is used

50. The size of the cam depends on …….circle
    A. Prime
    B. Outer
    C. Base
    D. Pitch

51. The fatigue life of a part can be improved by
    A. Electroplating
    B. Polishing
    C. Coating
    D. Shot peening

52. A transmission shaft subjected to bending loads must be designed on the basis of
    A. Maximum normal stress theory
    B. Maximum shear stress theory
    C. Maximum normal stress and maximum shear stress theories
    D. Fatigue strength

53. Which of the following is a positive locking device?
    A. Castled nut
    B. Locking by pin
    C. Locking by threaded pin
    D. Split nut

54. Which of the following key transmits power through frictional resistance only?
    A. Saddle key
    B. Barth key
    C. Kennedy key
    D. Tangent key

55. In involute gears the pressure angle in
    A. Dependent on the size of teeth
    B. Dependent on the size of gears
    C. Always constant
    D. Always variable

56. By which of the following, the resistance to fatigue of a material is measured?
    A. Endurance limit
    B. Ultimate tensile strength
    C. Young's modulus
    D. Elastic limit

57. …….. is a permanent fastening.
   A. Screw
   B. Rivet
   C. Bolt
   D. Key

58. …….. type of gear profile is free from interference.
   A. Cycloidal
   B. Hypocycloidal
   C. Epicycloidal
   D. Involute

59. …….. is not the part of a cotter joint.
   A. Collar
   B. Fork end
   C. Socket
   D. Spigot

60. The taper on a rectangular sunk key is
   A. 1 in 10
   B. 1 in 30
   C. 1 in 70
   D. 1 in 100

61. …… has the minimum gauge factor.
   A. Manganin
   B. Constantan
   C. Isoelastic
   D. Monel

62. …….. steel has maximum co-efficient of linear expansion.
   A. Spring
   B. Stainless
   C. Invar
   D. High

63. Clinometer is used to measure
   A. Angles
   B. Flatness
   C. Temperature
   D. Roundness

64. A rotameter is used to measure which of the following
   A. Specific gravity of liquids
   B. Velocity of liquids
   C. Pressure of gases
   D. Density of liquids

65. A kenotometer is used to measure
    A. Condenser pressure (vacuum)
    B. Mass density
    C. Kinetic energy bodies in motion
    D. Surface energy of the bodies

66. ..... is the most accurate instrument
    A. Mechanical comparator
    B. Optical projector
    C. Screw gauge
    D. Height gauge

67. ..... is not used for testing straightness
    A. Interference method
    B. Spirit level method
    C. Beam comparator
    D. Autocollimator

68. Which of the following is the pH value of pure water?
    A. Infinity
    B. 14
    C. 7
    D. 20

69. A fathometer works on the principle of reflection of
    A. Gamma rays
    B. Radio waves
    C. Ultrasonic waves
    D. Sound waves

70. ..... is not a piezoelectric material
    A. Sodium chloride
    B. Ammonium dihydrogen phosphate
    C. Quartz
    D. Barium titrate

71. Item, which best describes a CAM technology is
    A. numerical control
    B. documentation
    C. drafting
    D. geometric modeling

72. A device, which does the general population associate most with automation is
    A. flexible manufacturing
    B. robots
    C. computer graphics workstation
    D. numerical control machine

73. CAD and CAM are related through
    A. NC tape programming and automated design
    B. assembly automation and tool production
    C. parts production and testing
    D. a common data base and communication system

74. A display of a volume model that shows all of the edges is called
    A. 3-D model
    B. surface model
    C. wire-frame
    D. solid model

75. A technique for displaying applications where complex 3-D geometrics are required for exterior
    shall of a product is called
    A. 2-D modelling
    B. solid modelling
    C. 3-D modeling
    D. surface modelling

76. A small plastic boat loaded with pieces of steel rods is floating in a bath tub. If the cargo is dumped into the water allowing the boat to float empty, the water level in the tub will
    A. rise
    B. fall
    C. remains same
    D. rise and then fall

77. Viscosity of water in comparison to mercury is
    A. higher
    B. lower
    C. same
    D. unpredictable

78. If "l" and "δl" are length and change in length respectively, the strain is equal to
    A. $\delta l / l$
    B. $l / \delta l$
    C. $l \times \delta l$
    D. $l-\delta l$

79. To measure ..... strain, strain rosetters are used
    A. Linear
    B. Shear
    C. Volumetric
    D. Circular

80. The materials having same elastic properties in all directions are called .....materials.
    A. Elastic
    B. Isotropic
    C. Ideal
    D. Uniform

81. Poisson's ratio for aluminium is.....
    A. 0.13
    B. 0.23
    C. 0.43
    D. 0.33

82. During the tensile test, what does percentage of elongation indicates?
    A. Malleability
    B. Fatigue strength
    C. Creep
    D. Ductility

83. Among these following, ...has a non-linear stress-strain curve.
    A. Aluminium
    B. Rubber
    C. Low carbon steel
    D. Copper

84. Bending moment at supports in case of simply supported beam is always.....
    A. Less than unity
    B. More than unity
    C. Unity
    D. Zero

85. Which is the most economical section for a beam
    A. I - section
    B. Rectangular
    C. Circular
    D. Square

86. In case of cantilever, irrespective of the type of loading, the maximum bending moment and maximum shear force occurs at
    A. Fixed end
    B. Free end
    C. Middle
    D. $3/4^{th}$ of length of the cantilever

87. Two springs of stiffness S1 and S2, respectively are connected in parallel. What will be the stiffness of the composite spring
    A. S1 × S2
    B. S1 + S2
    C. S1 / S2
    D. (S1×S2) / (S1+S2)

88. What does good impact strength indicate?
    A. Good ductility
    B. Good creep resistance
    C. Good wear resistance
    D. Good fatigue behaviour

89. .....is copper free alloy
    A. German silver
    B. Muntz metal
    C. White metal
    D. Gun metal

90. .....is not ceramic material.
    A. Glass
    B. Bakelite
    C. Clay
    D. Aluminium oxide

91. .....has excellent resistance to acids
    A. Permalloy
    B. Constantan
    C. Hastelloy
    D. Monel metal

92. The chisels are generally made of ..... steel.
    A. High carbon
    B. Cast iron
    C. Medium carbon
    D. Dead mild

93. Sky appears blue because of ……
    A. Scattering of water droplets
    B. Scattering of air
    C. Scattering of light
    D. Scattering of dust particles

94. Cryogenics is a science dealing with……..
    A. High temperature
    B. Low temperature
    C. Friction and wear
    D. Growth of crystals

95. One carat is equal to ……...mg.
    A. 10
    B. 100
    C. 150
    D. 200

96. ……is the most abundantly found gas in the atmosphere
    A. Oxygen
    B. Hydrogen
    C. Nitrogen
    D. Carbon dioxide

97. The relative humidity of air is 100 percent nearly
    A. During night
    B. While it rains
    C. In a room cooled by a desert cooler
    D. In an air-conditioned chamber

98. The difference between the time available to do the job and the time required to do the job, is known as
    A. Constraint
    B. Event
    C. Duration
    D. Float

99. Simplex method is used for……..
    A. Value engineering
    B. Queuing theory
    C. Linear programming
    D. Network analysis

100.....phosphorous is used a rat poison

A. White
B. Red
C. Black
D. Violet

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