

(Common Question Paper model for All Trades)

Limited Departmental Competitive Examination - 2006
For the Post of Technician (Semi Skilled)

QUESTION PAPER

Subject: **GENERAL ENGINEERING**

Code: **1.92 / 223**

Sr. No.:

Roll No.:

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Signature of the Invigilator

Date: 04.07.2006

Duration: 2 Hours

Time: 09:00 Hrs. to 11:00 Hrs.

Max. Marks: 50

Instructions: Please read the following instructions carefully before writing your answers:

- 1) All Questions are compulsory.
- 2) Each Questions carries 1 mark.
- 3) There are four alternatives - (A), (B), (C), (D) given against each question out of which only one is the most appropriate answer. **If (A) is correct, round on the correct alternative like (A).**
- 4) If a question is answered wrongly or more than one answers are marked, 0.25 marks will be deducted for each such question.
- 4) No sheet from the Question Paper / Answer Book should be detached.
- 5) **Please DO NOT repeat DO NOT write your name anywhere on the Question Paper.**

Q.1. How much energy will be required to heat one gm of water from 30 deg C to 40 deg C:
(A) 10 Kilo Calories (B) 10 Calories (C) 10 Watts (D) 10 Btu

Q.2. The result obtained by dividing 0.18 by 0.09 will be:
(A) 0.2 (B) 0.02 (C) 2 (D) 20

Q.3. If $A : B = 1 : 2$ and $B : C = 4 : 5$ then the ratio between $A : B : C$ will be:
(A) 1 : 2 : 4 (B) 2 : 4 : 5 (C) 3 : 4 : 5 (D) 4 : 5 : 6

Q.4. A metallic alloy consists of 3 metals X, Y & Z and have proportionate weight ratio of 3 : 4 : 5. What will be the weight of metal Y if the total weight of alloy is 300 Kg.
(A) 75 Kg (B) 125 Kg (C) 75 Kg (D) None of these

Q.5. One solder is made of 45% of tin & 55% of lead, what will be the quantity of tin & lead in 28 kg of solder:

(A) 12 & 16 Kg (B) 15.4 & 12.6 Kg (C) 12.6 & 15.4 Kg (D) 16 & 12 Kg

Q.6. After simplification of $(\frac{3}{4}) + (\frac{2}{5}) - (\frac{7}{20})$, we will get:

(A) $\frac{19}{40}$ (B) $\frac{9}{20}$ (C) $\frac{4}{5}$ (D) $\frac{17}{20}$

Q.7. Convert 0.485 into percentage:

(A) 0.485 % (B) 4.85 % (C) 48.5 % (D) 485 %

Q.8. From the following two equations, the value of X & Y will be respectively:

$$X + 3Y = 8$$

$$2X + 5Y = 12$$

(A) ? 4, 4 (B) 3.5, 1 (C) 1, 2 (D) 2, 2

Q.9. The co-ordinates of four points are given below. Which point is lying in 4th quadrant:

(A) (5, 6) (B) (? 5, 6) (C) (5, ? 6) (D) (? 5, ? 6)

Q.10. The slip gauge used to prevent the exposed faces of a slip pack from damage is called?

(A) Tolerance (B) Center offset (C) Wrong alignment (D) None of these

Q.11. Least Common Multiple (LCM) of 30, 36, 48 & 60 will be:

(A) 480 (B) 640 (C) 720 (D) 960

Q.12. The square of 4.5 will be:

(A) 9 (B) 22.25 (C) 21.25 (D) 20.25

Q.13. Area of 4 walls is given by:

(A) $l \cdot b \cdot h$ (B) $(l + b) h$ (C) $2 h (l + b)$ (D) $h (l + b) / 2$

Q.14. Which of the following statement is not true ?

(A) The quantity of matter which a substance contains is its mass

(B) The mass varies from place to place

(C) The unit of mass is gm

(D) The mass is measured by a common "Tarazu"

Q.15. Water in an overhead tank is an example of:

(A) Kinetic energy (B) Potential energy (C) Both (A) & (B) (D) None of these

Q.16. One mile is equal to _____ Kms:

(A) 1.609 Km (B) 0.88 Km (C) 1.33 Km (D) 3 Kms

Q.17. 4th root of " 16 " will be:

(A) 4 (B) 8 (C) 256 (D) 2

Q.18. The helical angle determines?

- (A) Rake angle (B) Cutting angle (C) Lip angle (D) Chew angle

Q.19. Area of the parallelogram is given by:

- (A) length x breadth (B) 2 (length + breadth) (C) base x height (D) None of these

Q.20. Ohm's law is given by:

- (A) $V = I / R$ (B) $V = R / I$ (C) $I = R / V$ (D) $V = I \cdot R$

Q.21. Thermal efficiency of the furnaces can be improved by:

- (A) Waste heat recovery from flue gas
(B) Minimising heat losses from the furnace walls
(C) Maintaining proper draught
(D) All of the above

Q.22. Brass is an alloy of:

- (A) Nickel & Iron (B) Copper, Tin & Zinc (C) Copper & Zinc (D) Copper & Tin

Q.23. The diameter of the ball used in Brinell Hardness (BHN)

- (A) 5 mm (B) 10 mm (C) 20 mm (D) 15 mm

Q.24. Rockwell hardness test is useful only for:

- (A) Hard metals (B) Soft metal (C) Both (A) & (B) (D) None of these

Q.25. Extrusion process is used for producing:

- (A) Rods (B) Tubes (C) Channels (D) All of these

Q.26. Duralumin is an alloy of:

- (A) Aluminium & Ni & Mn (B) Aluminium & Copper & Manganese (C) Aluminium & Zinc (D) Aluminium & Si

Q.27. In vicker hardness testing indenter is:

- (A) 5 mm ball (B) 10 mm ball (C) Square based pyramid (D) Diamond ball

Q.28. To measure 1400°C temperature, the following thermocouple is used:

- (A) Copper - Constant (B) Aluminium - Chromel (C) Platinum - Platinumrhodium (D) None of these

Q.29. The teeth of spur gear is hardened by:

- (A) Cold working (B) Quenching (C) Induction hardening (D) Dispersion hardening

Q.30. In ultrasonic testing, the frequency required to investigate coarse grained material is:

- (A) Low frequency (B) High frequency (C) Medium frequency (D) Either low or higher frequency

- Q.31. TIG welding is useful in welding of:
(A) Stainless steel (B) Aluminium (C) Cast Iron (D) Titanium
- Q.32. At what temperature deg C & deg F are equal:
(A) 0 deg (B) ? 40 deg (C) 32 deg (D) None of these
- Q.33. The unit of calorific value is:
(A) K Cal / kg (B) K Cal (C) Calories (D) None of these
- Q.34. Steel glasses are made by:
(A) Forging (B) Deep drawing (C) Machining (D) None of these
- Q.35. 'Patenting' heat treatment is used in:
(A) Rolling (B) Wire drawing (C) Extrusion (D) Forging
- Q.36. Main function of riser is:
(A) For escape of hot gases
(B) To feed the metal to the casting
(C) To help flow of metal towards the mould cavity
(D) None of these
- Q.37. Basic refractory is:
(A) Fire clay (B) Silica (C) Chrome magnasite (D) None of these
- Q.38. Magnetic particle inspection is suitable for checking surface defect of:
(A) Non-ferromagnetic items (B) Ferromagnetic items (C) Both (A) & (B) (D) None of these
- Q.39. Melting point of pure copper is:
(A) 1981 deg F (B) 1600 deg F (C) 500 deg F (D) None of these
- Q.40. Anodising is the process of creating:
(A) Chromium oxide layer on the surface
(B) Aluminium oxide layer on the surface
(C) Zinc oxide layer on the surface
(D) None of these
- Q.41. Izode impact is used for determining:
(A) Toughness of material (B) Ductility (C) Fatigue strength (D) None of these
- Q.42. Boron in steel as alloying element increases:
(A) Corrosion resistance (B) Magnetic quality (C) Depth of hardening (D) Machinability
- Q.43. Nickel as alloying element in steel increases:
(A) Strength (B) Toughness (C) Resistance to heat (D) All of these
- Q.44. Cast iron is an alloy of:

(A) Iron & Carbon (B) Iron & Nickel (C) Iron, Carbon & Silicon (D) Iron & Silicon

Q.45. Small precision castings are generally made by:

(A) Centrifugal process (B) Shell moulding (C) Lost wax (D) Die casting

Q.46. The luster of a metal is due to:

(A) Its high density (B) Its high polishing (C) Its chemical inertness (D) Presence of free electrons

Q.47. Lowest hardness is obtained in steel by:

(A) Hardening (B) Annealing (C) Normalising (D) None of these

Q.48. Carbon is present in the form of graphite flakes in:

(A) Grey Cast Iron (B) White Cast Iron (C) Malleable Cast Iron (D) None of these

Q.49. Etching solution used for steel & cast iron is:

(A) Picral (B) 50% NH₄OH solution (C) Nital (D) 1% HF in water

Q.50. Solder is an alloy of tin and:

(A) Lead (B) Antimony (C) Copper (D) Nickel

Q.51. Aluminium metal is refined by the following process:

(A) Baeyer's process (B) Hoop's process (C) Hall's process (D) None of these

Q.52. Cupola is used for producing:

(A) Pig Iron (B) Cast Iron (C) Wrought Iron (D) All of these

Q.53. Melting point of Aluminium is:

(A) 800 deg C (B) 720 deg C (C) 660 deg C (D) None of these

Q.54. Temperature generated in Arc welding is in the order of:

(A) 1500 deg C (B) 2500 deg C (C) 5500 deg C (D) 8500 deg C

Q.55. Aluminium & its alloy find application in aerospace industry because of its:

(A) Cheap availability (B) Brightness (C) High strength to weight ratio (D) Softness

Q.56. Fluorescent dye penetrant test is used for detecting:

(A) Surface cracks (B) Internal defects (C) Structural characteristics (D) Flaws in magnetic material only

Q.57. Load applied in Rockwell hardness test scale 'C' is:

(A) 50 Kg (B) 100 Kg (C) 150 Kg (D) 3000 Kg

Q.58. Which is an acidic refractory:

(A) Magnesite (B) Dolomite (C) Fire clay (D) Chrome Magnesite

- Q.59. Anodising is given to items of:
(A) Aluminium (B) Copper (C) Steel (D) All of these
- Q.60. For Induction hardening of the surface of the component, the frequency used is:
(A) Low frequency (B) High frequency (C) Both (A) & (B) (D) Very high frequency
- Q.61. Impact strength of a material is a measure of its:
(A) Hardness (B) Toughness (C) Elasticity (D) None of these
- Q.62. Orsat's apparatus is used for checking the content of:
(A) Iron (B) Sodium (C) Carbon (D) None of these
- Q.63. The size of a sine bar is specified by the?
(A) Length (B) Weight (C) Maximum angle of setting (D) Measurement of width
- Q.64. Hardening of steel is always followed by:
(A) Annealing (B) Normalising (C) Carburising (D) Tempering
- Q.65. The type of jig used for location from a bore is the?
(A) Post jig (B) Drill jig (C) Solid jig (D) Box jig
- Q.66. In SG Iron, graphite will be in the form of:
(A) Flakes (B) Spheroids (C) Hexagonal shape (D) Square shape
- Q.67. Which one of this is not case hardening:
(A) Carburising (B) Nitriding (C) Homogenising (D) Carbonitriding
- Q.68. Melting point of pure Iron is:
(A) 900 deg C (B) 660 deg C (C) 1550 deg C (D) None of these
- Q.69. Common known high speed steel is:
(A) 18 : 4 : 1 (B) 14 : 8 : 2 (C) 18 : 4 : 2 (D) 16 : 4 : 2
- Q.70. Softest phase in Iron – Carbon equilibrium diagram:
(A) Cementite (B) Ferrite (C) Pearlite (D) Austenite
- Q.71. Graphite forming element in cast Iron:
(A) Si (B) Al (C) Ni (D) All of these
- Q.72. Pearlite is a mixture of:
(A) Ferrite & Cementite (B) Martensite & Ferrite (C) Ferrite & Bainite (D) None of these
- Q.73. Manganese in alloy steel improves its:
(A) Corrosion resistance (B) Cutting ability (C) Abrasive resistance & toughness (D) Creep resistance

Q.74. Ability of material to undergo large permanent deformation in compression is called:
(A) Ductility (B) Malleability (C) Plasticity (D) None of these

Q.75. Iron alloyed with carbon in percentage greater than 2% is called:
(A) Steel (B) Mild Steel (C) High Carbon Steel (D) Cast Iron

Q.76. With increase in carbon percentage, the toughness of mild steel:
(A) Increases (B) Decreases (C) Remains same (D) Changes randomly

Q.77. Cast iron has high _____ strength:
(A) Tensile (B) Compressive (C) Shear (D) Fatigue

Q.78. Which is a suitable material for heavier duty bearings:
(A) White metal (B) Phosphor bronze (C) Monel metal (D) nimonic alloys

Q.79. Which is the high melting point (> 2000 deg C) non ferrous metal:
(A) Tungsten (B) Berellium (C) Uranium (D) Germanium

Q.80. Which of the following has the poorest weldability:
(A) Low carbon steel (B) Mild steel (C) Wrought iron (D) High-carbon steel