(Common Question Paper model for All Trades)

Limited Departmental Competitive Examination - 2008
(Technical/Non-Technical)

**QUESTION PAPER**

Subject: **Metallurgical Engineering**                    Code: **0.17 / 101**
Sr. No.: …………………………………                    Roll No.:
………………………

Signature of the Invigilator …………………………………………
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Date: 12.08.2008                                                        Duration: 2 Hours
Time: 09:00 Hrs. to 11:00 Hrs.                                        Max. Marks: 70
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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) **The discarded answer if any, must be crossed properly and supported by initial of the candidate.**
5) If a question is answered wrongly or more than one answers are marked, 0.25 marks will be deducted for each such question.
6) **Use only blue or black ball pen only. Use of Pencil is not allowed.**
7) No sheet from the Question Paper / Answer Book should be detached.
8) **You may do rough work, if required, on the blank sheets.**
9) Please DO NOT repeat DO NOT write your name anywhere on the Question Paper.
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Q.1. 500 millimeters is equal to:
(A) 0.0005 Km (B) 0.005 Km (C) 0.05 Km (D) 0.00005 Km

Q.2. 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.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. 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.5. Angstrom is a unit of:
(A) Length (B) Sound level (C) Force (D) Power

Q.6. Aluminium billets are heated for extrusion at:
(A) 100 ? 250 deg C (B) 250 ? 350 deg C (C) 350 ? 450 deg C (D) 450 ? 500 deg C

Q.7. Where does the points (2, 3) and (−3, 4) lie respectively in X-Y co-ordinate system ?
(A) 1st & 4th quadrant (B) 2nd & 4th quadrant (C) 1st & 2nd quadrant (D) 3rd & 4th quadrant

Q.8. After simplification of ( 3 / 4 ) + ( 2 / 5 ) − ( 7 / 20 ), we will get:
(A) 19 / 40 (B) 9 / 20 (C) 4 / 5 (D) 17 / 20

Q.9. Convert 0.485 into percentage:
(A) 0.485 % (B) 4.85 % (C) 48.5 % (D) 485 %

Q.10. From the following two equations, the value of X & Y will be respectively:
X + 3 Y = 8
2 X + 5 Y = 12
(A) ? 4, 4 (B) 3.5, 1 (C) 1, 2 (D) 2, 2

Q.11. In SG Iron, graphite will be in the form of:
(A) Flakes (B) Spheroids (C) Hexagonal shape (D) Square shape

Q.12. Least Common Multiple (LCM) of 30, 36, 48 & 60 will be:
(A) 480 (B) 640 (C) 720 (D) 960

Q.13. The square of 4.5 will be:
(A) 9 (B) 22.25 (C) 21.25 (D) 20.25

Q.14. With increase in carbon percentage, the toughness of mild steel:
(A) Increases (B) Decreases (C) Remains same (D) Changes randomly

Q.15. During induction hardening, the depth of hardening is controlled by:
(A) Current (B) Voltage (C) Frequency (D) Phase angle

Q.16. In steel, corrosion resistance is due to:
(A) Manganese (B) Vanadium (C) Chromium (D) Cobalt

Q.17. 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.18. Which is a suitable material for heavier duty bearings:
(A) White metal (B) Phosphor bronze (C) Monel metal (D) nimonic alloys

Q.19. Izode impact is used for determining:
(A) Toughness of material (B) Ductility (C) Fatigue strength (D) None of these

Q.20. One mile is equal to _____ Kms:
(A) 1.609 Km (B) 0.88 Km (C) 1.33 Km (D) 3 Kms

Q.21. Water gas is also called:
(A) Blue gas (B) Red gas (C) Yellow gas (D) None of these

Q.22. Temperature 113 deg F is equal to:
(A) 60 deg C (B) 45 deg C (C) 55 deg C (D) 40 deg C

Q.23. 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.24. Metals at high temperature have less:
(A) UTS (B) Yield strength (C) Both (A) & (B) (D) None of these

Q.25. Pine oil used in Froth floatation act as a:
(A) Collector (B) Modifier (C) Frother (D) None of these

Q.26. Isobaric process means a constant:
(A) Temperature (B) Pressure (C) Volume (D) None of these

Q.27. Brass is an alloy of:
(A) Nickel & Iron (B) Copper, Tin & Zinc (C) Copper & Zinc (D) Copper & Tin

Q.28. The diameter of the ball used in Brinel Hardness (BHN) for soft material is:
(A) 5 mm (B) 10 mm (C) 20 mm (D) 15 mm

Q.29. Rockwell hardness test is useful only for:
(A) Hard metals (B) Soft metals (C) Both (A) & (B) (D) None of these

Q.30. Brinell's & Vicker's hardness values are almost identical upto a hardness of:
(A) 60 (B) 130 (C) 235 (D) 300

Q.31. An alloy of aluminium and _____ is called Hindalium:
(A) Magnesium (B) Silver (C) Manganese (D) Nickel

Q.32. An example of shaft furnace is:
(A) L.D. Converter (B) Glass melting tank (C) Blast furnace (D) Soaking pit

Q.33. If fuel and air are mixed ahead of the burner, it is called a _____ burner:
(A) Premix (B) Outside mixing type (C) Rotary (D) Diffusion

Q.34. Which of the following is an ore of Aluminium:
(A) Bauxite (B) Hemetite (C) Cuprite (D) None of these

Q.35. Extrusion process is used for producing:
(A) Rods (B) Tubes (C) Channels (D) All of these

Q.36. Ageing heat treatment in Aluminium:
(A) Increase strength (B) Decrease strength (C) No effect (D) None of these

Q.37. Which one of this is not case hardening:
(A) Carburising (B) Nitriding (C) Homogenising (D) Carbonitriding

Q.38. Common known high speed steel is:
(A) 18 : 4 : 1 (B) 14 : 8 : 2 (C) 18 : 4 : 2 (D) 16 : 4 : 2

Q.39. To measure 1400oC temperature, the following thermocouple is used:
(A) Copper - Constantan (B) Aluminium - Chromel (C) Platinum – Platinum rhodium (D) None of these

Q.40. Full form of LASER is:
(A) Light Amplification by Stimulated Emission of Radiation
(B) Light Amplification by Simultaneous Emission of Radiation
(C) Light Amplification by Stimulated Energy of Rays
(D) None of the above

Q.41. Boron in steel as alloying element increases:
(A) Corrosion resistance (B) Magnetic quality (C) Depth of hardening (D) Machinability

Q.42. Softest phase in Iron – Carbon equilibrium diagram is:
(A) Cementite (B) Ferrite (C) Pearlite (D) Austenite

Q.43. Graphite forming element in cast Iron is:
(A) Si (B) Al (C) Ni (D) All of these

Q.44. Pearlite is a mixture of:
(A) Ferrite & Cementite (B) Martensite & Ferrite (C) Ferrite & Bainite (D) None of these

Q.45. Piping is a:
(A) Rolling defect (B) Forging defect (C) Casting defect (D) Maching defect

Q.46. Cutting ability & Reduction in hardenability of steel is achieved by adding:
(A) Ni (B) Co (C) Cr (D) W

Q.47. Manganese in alloy steel improves its:
(A) Corrosion resistance (B) Cutting ability (C) Abrassive resistance & toughness (D) Creep resistance

Q.48. Ability of material to undergo large permanent deformation in compression is called:
(A) Ductility (B) Malleability (C) Plasticity (D) None of these

Q.49. White metal contains:
(A) 75 % Cu & 25 % Zn (B) 75 % Cu & 25 % Sn (C) 75 % Cu & 25 % Ni (D) 75 % Ni & 25 % Zn

Q.50. The teeth of spur gear is hardened by:
(A) Cold working (B) Quenching (C) Induction hardening (D) Dispersion hardening

Q.51. Iron obtained from the blast furnace is:
(A) Cast Iron (B) Wrought Iron (C) Pig Iron (D) Nodular Iron

Q.52. 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.53. Refining of Aluminium is done by:
(A) Zone refining (B) Hoope's process (C) Harri's process (D) None of these

Q.54. The case hardening achieved by nitriding is approximately:
(A) 150 VPN (B) 1150 VPN (C) 550 VPN (D) 2500 VPN

Q.55. TIG welding is useful in welding of:
(A) Stainless steel (B) Aluminium (C) Cast Iron (D) Titanium

Q.56. Cupola is used for melting:
(A) Steel (B) Cast Iron (C) Copper (D) Aluminium

Q.57. Steel glasses are made by:
(A) Forging (B) Deep drawing (C) Machining (D) None of these

Q.58. Orange feel effect is due to:
(A) Fine grain (B) Large grain (C) Fine elongated grain (D) None of these

Q.59. 'Patenting' heat treatment is used in:
(A) Rolling (B) Wire drawing (C) Extrusion (D) Forging

Q.60. 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.61. Which is solid-solid transformation:
(A) Cutectic (B) Peritectic (C) Eutectoid (D) None of these

Q.62. Presence of Arsenic in copper greatly reduces its:
(A) Electrical conductivity (B) Tenacity & hardness (C) Malleability & ductility (D) None of these

Q.63. Ore of zinc is:
(A) Galena (B) Azurite (C) Calamine (D) Cerussite

Q.64. Ideal silicon content in pig iron used for basic process of steel making is:
(A) 0.01 % (B) 0.5 % (C) 1.5 % (D) 2 %

Q.65. 18 / 8 stainless steel is a:
(A) High alloy steel (B) Medium alloy steel (C) Low alloy steel (D) None of these

Q.66. A skin pass is given to steel sheet in a rolling:
(A) To make the surface smooth (B) To impart ductility (C) To achieve close tolerance (D) None of these

Q.67. Basic refractory is:
(A) Fire clay (B) Silica (C) Chrome magnasite (D) None of these

Q.68. In Arc welding, if d = electrode rod diameter, the length of the Arc should be:
(A) d (B) 0.5 d (C) 2 d (D) 2.5 d

Q.69. Melting point of pure copper is:
(A) 1981o F (B) 1600o F (C) 500o F (D) None of these

Q.70. Oxygen to acetylene ratio in oxidising flame is:
(A) 1 : 1 (B) 1.5 : 1 (C) 2 : 1 (D) 2.5 : 1

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