

NTPC PAPER 2008

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(NTPC Previous Exam Paper from the Year 2008)

- An ice block submerged in the water, if the ice melts level of water (increase, decrease, remains same, none)
- Simply supported beam with w point load at the middle, max. bending moment? ( $wl/4$ )
- Simply supported beam with UDL, max. deflection ( $wl^4/384EI$ )
- Cantilever beam point load at tip, max. bending moment comes at (end)
- When bearing life  $L_{10}$  represents (bearings 10% survive, bearings 10% fails, none)
- For welding high carbon steels which type of flame is used (oxidizing, carburizing, neutral, none)
- Arrange the following cutting tools in decreasing order of machining hardness...Ceramics
- When  $P_1$  and  $P_2$  are the loads acting on bearings with life  $L_1$  and  $L_2$  then  $L_1/L_2 = ?$   
 $L_1/L_2 = \{P_2/P_1\}^{10/3}$
- Product simplification does not mean? (Product characterization)
- Which of the following process has the most scope in manufacturing? CAD/CAM, CAM, CIM, All the above.
- Concurrent engineering means? (Manufacturing, designing, both, none)
- Which manufacturing process yields higher output and increases worker productivity- (process layout, line+process, functional layout)
- 18-4-1 represents-, Tungsten-Cr-Vn
- For which material is negative allowance provided- (Graphite, steel, bronze, cast iron)
- What is the recrystallisation temperature of tin- (60, 300, 1000, none)
- What is the purpose of borax in soldering-
- Top gates are provided in which type of casting- (Shallow casting, simple, complex, none)
- Which statement is true regarding simple gear trains- (i/p and o/p shafts fixed, each shaft has 2 gears, i/p & o/p shafts moving)
- What is the purpose of normalizing- (Refining of grain structure)
- As the grain size is decreased- (Hardness increases, corrosion resistance decreases, both)
- Isothermal gas is filled in a vessel at a pressure  $P$  and temperature  $T$  then considering the compressible forces as the height increases pressure ?? (linearly increases linearly decreases exponentially increase)
- A bottle is filled with water and air and is tied to a string and is rotated in horizontal direction. Then in which direction will air bubble travel? (bottom, neck, uniformly spread)
- A empty bottle (in vacuum) filled with a gas at temp  $T$  and press  $P$  when the pressure of bottle reaches  $P$  temperature of the gas is \_? ( $T$ ,  $T/K$ ,  $TK$ )

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- Bearing somerfield number \_ with load on bearing? (increases, decreases, no change)
- Critical radius for a sphere is- $(2k/h)$
- Critical radius exist for\_ (spherical, cylindrical, both, slab)
- Convecti onal resistance/internal resistance is called (biot number)
- Nusselt no. is?  $(hl/k)$
- $E_{00}=?$
- Which statement is true regarding critical path method? (i only one critical path exists for a network, more than one with same duration,)
- Shipment cost, inspection cost, storage cost comes under\_ (carrying cost, holding cost,)
- Ischronous governors sensitivity is- (zero, infinite)
- Self energized brakes are-(friction moment acts in the direction of application of force, opposite to the direction of force, does not need a force to act,)
- The ratio of heat capacities for evaporator and condenser is\_ (Zero, infinity)
- When steam and air mixture with partial pressure 0.06 and 0.07 enters a condenser what is the condenser pressure? (0.06, 0.07, 0.53, 0.03)
- In pulverized burning of coal heat transfer from boiler to water occurs through\_(predominant radiation, convection, conduction, conduction+convection)
- Rankine cycle efficiency for same parameters increases mostly with\_(reheat, regeneration, super heating)
- Ericson cycle with all reversible processes assume\_(carnot cycle, stirling, brayton)
- Air delivery tank at outlet of reciprocating compressor is provided for\_ (provide constant pressure, avoid cavitation,)
- High speed centrifugal pump has \_? (vanes faces in forward direction side, backward, radial vanes)
- Thermal efficiency in decreasing order\_? (Otto cycle>dual cycle>diesel cycle)
- When a 1000 K body comes in contact with atmosphere at 300K a loss of 9000 KJ heat is transferred. The net available energy transferred is\_
- When entropy of a system increases\_? (unavailable energy increases)
- Rolling is a process widely used for\_?
- Tool nomenclature\_?
- In francis turbine movement of steam?
- For low power consumption \_? (rake angle should be increased / decreased, nose angle increased/ decreased)
- Continuous chips occur in\_? (High speeds, low speeds, both, none)
- Primary forces in a reciprocating engine\_? (fully balanced, partially balanced, completely unbalanced, none)

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- In proximate analysis pyrogallol is used for analysis of which element\_? (nitrogen, oxygen)
- Sulphur content in fuel greatly affects\_? (corrosion)
- Heat transfer through radiation can be increased by\_? (decreasing emissivity and increases temperature of hot body)
- Which theory of failure clearly explains the failure in case of ductile material? (Maximum shear stress theory or Guest's or Tresca's theory)

When a material is subjected to continuous cycles which limit is being verified? (Endurance limit)

Where is stress concentration maximum? (notches, stress reducing through cuts)

- Power transmitted through a belt drive\_?  $P(T_2 - T_1)$
- According to Euler's theory crippling or buckling load is \_\_\_\_ ( $W_{cr} = C \frac{2EI}{l^2}$ )
- During sensible heating, specific humidity\_? (remains constant)
- COP of a refrigerator is \_? (greater than 1)
- The maximum temperature in a refrigeration cycle is\_? (less than/greater than/equal to critical temperature)
- The pressure at the throat of the nozzle\_? (maximum, minimum)
- For a statically determinate set of forces for equilibrium\_? ( $\sum f(X), \sum f(Y), \sum f(Z) = 0, \sum M = 0$ )
- For a statically determinate set of forces- (there are as many equations as the no. of unknowns)
- 1-2-3 analysis is used for\_? (1. break even analysis, ??)
- A problem on mean time of service something like a salesman has a rating of 120. considering 10% allowance time calculate the time required to serve 120?
- A problem on determining time in a queue?
- Energy equation for a laminar flow is \_? (Uniform and steady, non uniform and unsteady)
- Undercuts in welding occurs due to\_? (low welding current, high welding current)
- Work holding equipment in shearing?
- At the centre of a nozzle \_? ( $Mach\ no < 1 \Rightarrow = 1; = 1$ )