Category Engineering

1-The total hardness of the potable water should be less than
_____
A-500 ppm
B-700 ppm
C-900 ppm
D-1000 ppm
A-500 ppm

2-In Fourier's law, the proportionality constant is called the
A-thermal diffusivity
B-heat transfer co-efficient
C-Stefan-Boltzman constant
D-thermal conductivity
D-thermal conductivity

3-Which among the following is not a physical property?
A-Melting point
B-Boiling point
C-Solubility
D-Reactivity
D-Reactivity

Civil Engineering

1-The Egyptian code states that the maximum spacing between main
reinforcing bars in solid slabs should not be more than:
a-Twice the slab thickness.
b-200 mm
c-The least of them
b-200 mm

2-Tests on reinforced concrete in case of failure of cubes:
a-Penetration test.
b-Core test.
c-Ultra-sonic test.
d-All of them.
d-All of them.

3-If the class of concrete on a drawing reads C30/20, then that
means:
a-Compressive strength = 30 KG/cm2 tested using 20 cm test cubes.
b-Compressive strength = 30 N/mm2 tested at 20 days after sampling.
c-Compressive strength = 30 N/mm2 with 20 mm being the maximum size
of aggregate.
**c-Compressive strength = 30 N/mm2 with 20 mm being the maximum size
of aggregate.**

1- Communication that takes place between the members of an organization within itself is __:
   a. External
   b. Formal
   c. Informal
   d. Internal
   d. Internal

2- Which one of the following enables us to use the entire bandwidth simultaneously:
   a. TDMA
   b. CDMA
   c. FDMA
   d. All of the above
   b. CDMA

3- In OSI Model the Network layer PDU is:
   a. Packet
   b. Message
   c. Bits
   d. Frames
   a. Packet

Computer and Information Technology

1- The basic operations performed by a computer are-----?
   A- Arithmetic operation
   B- Logical operation
   C- Storage and relative
   D- All the above
   B- All the above

2- Which one is not a part of a computer device or system?
   A- Mother Board
   B- CPU
   C- Keyboard
   D- Scanner?
   D-Scanner

3- When a computer is turned on, a special type of absolute loader is executed known as
   A- Compile and Go' Loader
   B- PreBoot Loader
   C- Relating Loader
   D- Bootstrap Loader
   D-Bootstrap Loader

Computer Engineering

1- The Window's Desktop is:
A- An area that is used for viewing documents
B- An area that organizes your documents
C- An area that gives you quick access to files
D- All of the Above
D- All of the Above

2- The length of the one-byte instruction is
A- 2 bytes
B- 1 byte
C- 3 bytes
D- 4 bytes
B- 1 byte

3- The data structure required to check whether an expression contains a balanced parenthesis is?
A- Stack
B- Queue
C- Array
D- Tree
A- Stack

Electrical Engineering

1- The transformer oil in the transformers is used for:
A- Insulation
B- Cooling
C- Extinguish the spark
D- All the above
D- All the above

2- The LV circuit breakers which are used in atypically ranges up to 1600 A are called:
A- MCB
B- MCCB
C- AIR CB
B- SF6 CB
B- MCCB

3- Harmonics in transformer result in:
A- Increases core losses
B- Increases I2R Losses
C- Interference with communication circuits
D- All of the above
D- All of the above

1. The O/P char, of a FET is given in the figure. In which region is the device biased for small signal amplification?
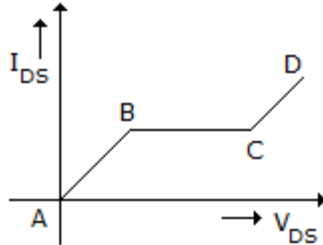
A. AB
B. BC
C. CD
D. BD
B. BC

2. The scaling factor of an MOS device using constant voltage scaling model, the gate area of the device will be scaled as
A. $1/\alpha$
B. $1/\alpha^2$
C. $1/\alpha^3$
D. $1/\alpha^4$
D. $1/\alpha^4$

3- Two thyristor of same rating and same specifications
A. will have equal turn on and turn off periods
B. will have equal turn on but unequal turn off periods
C. may have equal or unequal turn on and turn off periods
D. will have unequal turn on and turn off periods
C. may have equal or unequal turn on and turn off periods

2- In an open loop control system:
A. Output is independent of control input
B. Output is dependent on control input
C. Only system parameters have effect on the control output
D. None of the above
A. Output is independent of control input

3- Digital communication is _____ to environmental changes?
A. Less sensitive
B. More sensitive

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    C. Does not depend
    D. None of the mentioned
    A. Less sensitive
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4- In addition to storage instructions, PLC controls _____
    A. Logic sequence timing
    B. Counting
    C. Arithmetic operations
    D. All of the above
    D. All of the above
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Mechanical Engineering

1- Normally, in which phase of a substance does convection mode of heat transfer take place?
A. solid
B. liquid
C. gaseous
D. liquid and gaseous
D. liquid and gaseous

2- Which of the following is NOT a type of positive displacement pumps?
A. Reciprocating pump
B. Rotary displacement pump
C. Centrifugal pump
D. None of the above
B- Centrifugal pump

3- In the shown T-s diagram, the thermodynamic states 5 and 6 are, respectively ….
   A. Superheated vapor and subcooled liquid.
   B. Saturated vapor and saturated liquid.
   C. 5 and 6 are in the mixture zone.
   D. Superheated vapor and saturated vapor.
   A. Superheated vapor and saturated vapor.
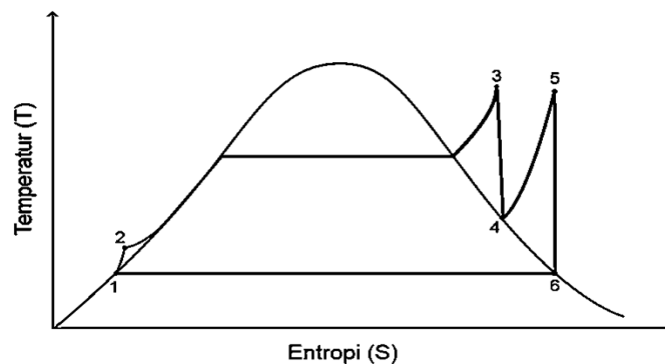
1- The size of the reactor is said to be critical when:
A- Chain reaction can be initiated
B- It becomes uncontrollable
C- It explodes
D- It produces no power
A- Chain reaction can be initiated

2- For a PWR with three reactor coolant loops, there is only ……………… pressurizer:
A- One
B- Two
C- Tree
D- None
A- One

3- Which one of the following defines K-excess?
A- Keff – 1
B- Keff + 1
C- (Keff - 1)/Keff
D- (1-Keff)/Keff
A- Keff – 1

Category Science

Chemistry

1. A 1.0-g sample of carbon dioxide gas is fully decomposed into its elements, yielding 0.273 g of carbon and 0.727 g of oxygen. What is the ratio of the mass of O to C?
   A. 1.33
   B. 3.4
   C. 2.66
   D. 0.375
   C. 2.66

2. Which of the following can be used as coolant in a nuclear reactor?
   1.   Carbon dioxide
   2.   Liquid sodium
   3.   Helium (He) gas
   Select the correct option from codes given below:
   A-1 & 2 Only
   B-2 & 3 Only
   C-1 & 3 Only
   D-1, 2 & 3
   D-1, 2 & 3

3. With reference to the Radioactivity, which among the following is called an isomeric transition?
   A. Alpha emission
   B. Gamma emission
   C. Beta emission
   D. X-Ray emission
   B. Gamma emission

1. What is the missing element from the following equation $^{226}_{88}Ra \rightarrow$
   $? + ^4_2He$
   a) $^{230}_{86}Rn$
   b) $^{220}_{86}Rn$
   c) $^{228}_{86}Rn$
   d) $^{222}_{86}Rn$
   e) $^{224}_{86}Rn$
   d) $^{222}_{86}Rn$

2. What is the difference between X-rays and gamma rays?
   a) X-rays are produced outside nuclear whereas gamma rays are produced in nuclear decays.
   b) X-rays have higher energies than gamma rays.
   c) gamma rays are produced by bremsstrahlung.
   d) X-rays and gamma rays interact with matter differently.
   a) X-rays are produced outside nuclear whereas gamma rays are produced in nuclear decays.

3. Rutherford's experiments, in which he bombarded a very thin gold foil with alpha particles, showed that is
   a) all of the α particles passed through the foil without significant deflection.
   b) none of the α particles were able to penetrate the foil.
   c) all of the α particles passed through the foil and were deflected through large angles.
   d) most of the α particles passed through the foil with negligible deflection but some were deflected through large angles.
   e) the α particles were linearly polarized after passing through the foil.
   d) most of the α particles passed through the foil with negligible deflection but some were deflected through large angles.

1- Which of the following is a table with all possible values of a
random variable and its corresponding probabilities?
(A) Probability Density Function
(B) Probability Mass Function
(C) Probability Distribution
(D) Cumulative distribution function
(C) Probability Distribution

2- The domain of y = cos-1 (x2 − 4) is
(A) [3, 5]
(B) [0, π]
(C) [−√5, −√3] ∩ [−√5, √3]
(D) [−√5, −√3] U [√3, √5]
(D) [−√5, −√3] U [√3, √5]

3- The   half-life   of 215At is 100μs.   The   time   taken   for   the
radioactivity of a sample of 215At to decay to 1/16th of its initial
value is
(A) 400 μs
(B) 6.3 μs
(C) 40 μs
(D) 300 μs
(A) 400 μs