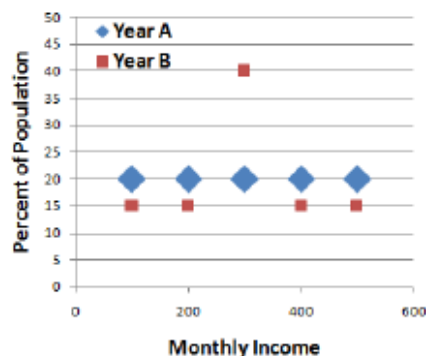


Sample Question Paper for Written Test  
Department of Chemical Engineering  
IIT Bombay

This is just a representative paper. Total number of questions may differ in the written test

1. A car travels 50 m. east, followed by 50 m. north, and finally 100 m. west. How far is the car from its starting point?
  - (a) 50 m.
  - (b) 100 m.
  - (c)  $50\sqrt{2}$
  - (d)  $50/\sqrt{2}$
  
2. What comes next: ABP, ECQ, IDR, OFS, \_\_\_?
  - (a) PGT
  - (b) UGT
  - (c) UHX
  - (d) PHX
  
3. There are  $p$  balls and  $q$  baskets ( $p > q$ ). Which of the following is always true if the balls are put randomly in the boxes.
  - (a) There is no empty basket.
  - (b) There are  $(p-q)$  baskets with at least one ball.
  - (c) There is at least one basket with two or more balls.
  - (d) There are  $(p-q)$  baskets with exactly two balls.
  
4. The market price of a car is Rs. 50 Lakhs. You buy the car at a discount of 20% on the market price. To make a 20% profit, you should sell the car at?
  - (a) 50 Lakhs
  - (b) 32 Lakhs
  - (c) 60 Lakhs
  - (d) 48 Lakhs
  
5. You are given an unlimited supply of matchsticks to make a 3 dimensional volume. What is the fewest number of edges that are needed to make this 3-dimensional volume?
  - (a) 12
  - (b) 4
  - (c) 3
  - (d) 6
  
6. I went to buy 1 kg rice, and on coming home I discovered that it contains 5% (by weight) white stones. If I remove half the stones from the rice, what is the percent of stones remaining in the mix?
  - (a) 2.5%
  - (b) 2.49%
  - (c) 2.56%
  - (d) 2.1%

7. A coin is tossed a 100 times. What is the probability that we see at least one Heads in these 100 tosses?
- (a)  $1/100$   
 (b)  $99/100$   
 (c)  $1 - (1/2)^{100}$   
 (d)  $(1/2)^{100}$
8.  $N$  cubes, each with surface area 'a' and volume 'v', are placed side by side in a single row to form a cuboid. What is the surface area 'A' and volume 'V' of the cuboid.
- (a)  $A = 2N(a/3)+a/3;$                        $V = N.v$   
 (b)  $A = Na;$                                        $V = N.v$   
 (c)  $A = 4N(a/3)+a/6;$                        $V = N.v$   
 (d)  $A = N.a/6;$                                  $V = N.v/3$
9. An equilateral triangle of side  $T$ , a square of side  $S$ , and a regular pentagon of side  $P$  have equal area. Which of the following is true?
- (a)  $T > S > P$   
 (b)  $T < S < P$   
 (c)  $T = S = P$   
 (d) None of the above.
10. The income distribution of residents of a city for two years looks like the graph below. What can we say about the distribution from this graph?



- (a) average income in year 'A' is more than that in year 'B'
- (b) average income in year 'A' is less than that in year 'B'
- (c) standard deviation of income in year 'A' is more than that in year 'B'
- (d) standard deviation of income in year 'B' is more than that in year 'A'