Sample Questions

Notes:

1. The test will have three parts Part I (Essay), Part II (Maths and Logical reasoning) and Part III (Aptitude).
2. In Part I, you would be asked to write a couple of essays on any given topic.
3. Sample questions for Part II and Part III are given below.
4. Questions in Part II can have more than one correct answer.

Part II. Mathematics and Logical Reasoning

1. Fuel cost for operating a train is proportional to the square of the speed, and is Rs.50 per hr when the speed is 20 mph. Other charges, such as labor, for example, put together is Rs.200 per hr. The train has to cover a journey of 500 miles. Which of the following statements are true?

    (a) The train can cover the entire journey for Rs.3000

    (b) At a speed of 40 mph, the train achieves minimum cost

    (c) The time required to cover the journey for the minimum cost is 15 hrs

    (d) The train will take at least 18 hrs to complete the journey

    (e) The minimum cost is Rs.5000

2. A quadrilateral ABCD satisfies the following relationship with respect to any point M in the plane

$$AM^2 + CM^2 = BM^2 + DM^2$$

This quadrilateral could be

    1. a parallelogram

    2. a rectangle

    3. a square

    4. a rhombus

    5. None of the above.

3. The area of one leaf of a rose, given by the equation $r = \sin 3\theta$ is

    (a) $\pi/12$ (b) ln 3   (c) ln 2   (d) $\pi/4$ (e) $\pi/2$

4. The series $1/(1+\sqrt{1})+1/(1+\sqrt{2})+1/(1+\sqrt{3})+1/(1+\sqrt{4})...$ is

    (a) < 10   (b) < 50   (c) < 100   (d) convergent series

    (e) divergent series

5. Consider the integral $\int_0^1 x \ln x \, dx$. Which of the following are true?

1. it is equal to $-1/4$
2. it is divergent
3. it is equal to an irrational number
4. does not have a closed form
5. it is impossible to evaluate this integral

6. While investing in stock markets, a highly recommended strategy by brokers is the systematic investment plan (SIP). In this, you pay a regular premium at periodic intervals instead of investing a lump sum amount to avoid timing the market (i.e. waiting for the market to become favourable). Say, you decide to go by the SIP strategy and invest P amount every year for n years. The average rate of returns is $(100 \times r)\%$ (like 10% means r = 0.1) and the interest is compounded annually. At the end of n years, the amount would be

1. $nP(1 + r)^n$
2. $P((1+r)^{(n-1)} - 1)/r)$
3. $P(1 + r)((1+r)^n - 1)/r)$
4. The SIP returns are always less than the returns got by investing lump sum the total amount nP for n years (assume the same rate of returns).
5. The SIP returns can even be less than half the returns got by investing lump sum amount of nP for n years (assume the same rate of returns)

Part III. Aptitude

1. Examine the following sentences from Malay/Indonesian languages.

    (i) ini kuda   'This is a horse'

    (ii) ini Ali.   'This is Ali'

    (iii) Ali bagus   'Ali is good'

    (iv) Ali mejual kuda itu   'Ali sells that horse'

    (vi) kuda Ali bagus   'Ali's horse is good'

    (vii) jualan ini bagus   'This merchandise is good'

    (viii) kuda ini dijual oleh Ali   'This horse is sold by Ali'

    (ix) Ali penjual kain   'Ali is a cloth seller'

    Translate into English: kuda bagus ini kuda Ali

2. Beautiful beaches attract people, no doubt about it. Just look at this city's beautiful beaches, which are among the most overcrowded beaches in the state. Which of the following exhibits a pattern of reasoning most similar to the one exhibited in the argument above?

    (A) Deer and bear usually appear at the same drinking hole at the same time of day. Therefore, deer and bear must grow thirsty at about the same time.   [   ]

    (B) Children who are scolded severely tend to misbehave more often than other children. Hence if a child is not scolded severely that child is less likely to misbehave.   [   ]

    (C) This software program helps increase the work efficiency of its users. As a result, these users have more free time for other activities.   [   ]

    (D) During warm weather my dog suffers from fleas more so than during cooler weather. Therefore, fleas must thrive in a warm environment.   [   ]

    (E) Pesticides are known to cause anemia in some people. However, most anemic people live in regions where pesticides are not commonly used.   [   ]

3. Give all the words which describe emotions in your language

4. Read the passage given below and answer the questions underneath:

    There are seven species of deer living wild in Britain. The Red Deer and the Roe Deer are native species. Fallow Deer were introduced by the Romans and, since the seventeenth century, have been joined by three other non-native species: Sika, Muntjac and Chinese Water Deer the ancestors of which have escaped from parks. In addition, a herd of Reindeer was established in Scotland in 1952.

    Most of the Red Deer in Britain are found in Scotland, but there are significant wild populations in south-west and north-west England, East Anglia and the north Midlands. Red deer can interbreed with the introduced Japanese Sika deer and in some areas, hybrids are common.

1. All of the Red Deer in Britain are found in Scotland.

       A   B   C
      True   False   Can't Say   A B C

2. Red Deer can interbreed with Fallow Deer.

       A   B   C
      True   False   Can't Say   A B C

3.The Fallow Deer is not native to Britain.

       A   B   C
      True   False   Can't Say   A B C

4. There are no Reindeer in England.

       A   B   C
      True   False   Can't Say   A B C

5. All of the Muntjac in England have escaped from parks.

       A   B   C
      True   False   Can't Say   A B C