**EFPM RESEARCH APTITUDE TEST (EFPM RAT)**

**(SAMPLE QUESTIONS)**

**(QUANTITATIVE APTITUDE, VERBAL ABILITY, DATA INTERPRETATION & REASONING, AND RESEARCH APTITUDE)**

Questions: The multiple choice questions have 04 options for each question and out of 04 only one is the right answer.

1. Consider the equation $x^2-8x+21=|x-4|+5$. The ratio of sum of all solutions and the number of unique solutions of the equation is equal to

   a. 3:1 b. 6:1 c. 16:3 d. 12:5

2. If $a=4x^2+4xy$ and $b=4y^2+4xy$, which of the following is equivalent to $x+y$?

   a. $\sqrt{a+b}$ b. $2\sqrt{ab}$ c. $\frac{\sqrt{a+b}}{2}$ d. $\frac{a+b}{\sqrt{2}}$

3. In a recent survey, it was observed that the ratio of right-handed people to left-handed people is 3:1. The ratio of men to women is 3:2. If the number of left-handed men is minimized, then what percent of the people are right-handed women?

   a. 6 b. 24 c. 15 d. cannot be determined

4. **The paragraph given below has a sentence missing which is indicated by a blank. From the choice given below the paragraph, choose the sentence that seems the most logically appropriate to complete the given paragraph.**

   Photographers are the eyes of a newspaper. They go out every day, not just to capture current events, but also the city, its people, their hopes, joys, and sorrows. Hopes and happiness are dominant emotions here, and the images must try to capture the small joys that make a city happy. However, they are not all picture perfect moments. The job of a news photographer is also to find a frame that captures adversity; and that can be harder than capturing a cheerful moment. _____

_____.But, the idea is to showcase range: of emotions, events, and moods.

(a) It should make the reader stop and reflect; yet, it cannot be distasteful.
(b) The idea is to make the reader suffer along with the victim.
(c) The difficulty is to find suffering in a happy city; yet, it is essential.
(d) It should be sensitive, sensational, and dramatic to the reader.

5. **Complete the following sentence by choosing the grammatically correct phrase/clause from the options given below each:**
One must focus on the task in hand and_____.
   (a) struggle to do his best.
   (b) try to do one's best.
   (c) aim to do his or her best.
   (d) try doing the best he can.

6. **The sentence given below, when properly sequenced, forms a coherent paragraph. Each sentence is labeled with a number. Choose the most logical order of the sentences from the choices given:**
   1. Despite the initial agreement on a quota system for the migrants, many European countries are sealing their borders to these migrants.
   2. The migrants themselves, traumatized by their sufferings before reaching Europe, are finding it difficult to adapt to the very different rules and customs of the societies that give them refuge.
   3. Europe's muffled fears about the migrant crisis have now come out in the open.
   4. Faced with endemic poverty and discrimination, it is possible that they will retreat to migrant ghettos which often breed isolation and resentment.
   5. These fears are threatening European unity and stability, as the influx of migrants appears endless.

   (a) 4 2 3 1 5
   (b) 3 2 5 4 1
   (c) 1 2 4 3 5
   (d) 3 5 1 2 4

7. ABC is a triangle with $\angle ACB = 90^{o}$, and $\angle BAC = \theta$. Let AC = b. CD is drawn perpendicular to AB, DE perpendicular to BC, EF perpendicular to AB and so on, indefinitely. The total length of all the perpendiculars (including AC, which is perpendicular to BC) is
   a. 2b
   b. $2b.\sin\theta$
   c. $b/(1-\sin\theta)$
   d. $b/(1+\sin\theta)$

8. The equation $10^{x} - m(x + 10) = 0$ , where m is a constant and m < 0, has
   a. exactly 2 real roots
   b. no real root
   c. exactly one real root
   d. None of the above

9. Let n be a positive integer. Then $\frac{1}{2!}+\frac{2}{3!}+\frac{3}{4!}+\cdots+\frac{n-1}{n!}=$

   a. n/2
   b. 1-1/n!
   c. 2+1/(n-1)!
   d. None of the above

10. XYZ Logistics Ltd. has cartons of standard size and boxes of two sizes: large and small. In each carton, either 8 large boxes or 10 small boxes may be packed and shipped. As a policy, XYZ does not mix small and large boxes in the same carton, and does not pack and ship partially full cartons. On 10 Jan 2016, if XYZ shipped 96 boxes in all, how many cartons did XYZ ship if there are more large boxes than small?

    a. 12
    b. 11
    c. 10
    d. 9

11. Let X1 is a random variable with mean μ1 and standard deviation σ1. Similarly, X2 follows some distribution with mean μ2 and standard deviation σ2. The distribution of X1+X2 can be described as

    a. Cannot be determined if X1 and X2 are correlated random variables
    b. Mean μ1+ μ2 and standard deviation σ1+ σ2
    c. Mean μ1+ μ2 and variance σ12+ σ22+2cov(X1,X2)
    d. X1+X2 is a constant; distribution does not exist