**SSC Model Test 2024** Subject Code: 1 2 6

Time: 2 hour 30 min **Higher Mathematics (Creative)** Full Mark : 50

[N.B. Answer total 5 questions at least one from each of the groups.]

Group A: Algebra

1. A = (1 - , B = (p + qx , c = (q - px
2. Solve: a(x + b) < r, [a ≠ 0]
3. If p = 1, q = 2, find the coefficient of x by expanding BC.
4. Expand A( 1 + by ascending order of x and find the value of 1.01 × (0.9999.
5. (i) + …….. it is a geometric Series.

(ii) F(x) =

1. Show that, F(x, y, z) = (x + y + z)(xy + yz + zx) is a cyclic polynomial.
2. Find the summation from fifth to fifteenth term by put x = 1 in stem (i)
3. Examine if F(x) is inversible or not. If so, find
4. = =
5. If a = c, then show, x = z
6. If x = , y = then show,

+ = +

1. If abc = 1, then prove + + = 1

Group B: Geometry and Vector

1. The three medians of Δ ABC are AD, BE and CF converge at point G.
2. If GD = 2 unit, then AD = ?
3. Prove that:

A + =2 (

1. Prove that: 3(A + ) =

4 (

1. **a**, **b**, **c** and **d** are the position vector of .
2. What do you mean by position vector?
3. Prove that ABCD is a parallelogram iff

**b** – **a** = **c** – **d.**

1. Prove that if ABCD is a parallelogram then the two diagonal is equally bisecting each other.
2. A (2,4), B (3,1), C (4,5), 2x – y + 2 = 0,

x – 2y + 3=0

1. Distance from A (2, 4) to Y-axis and the point P (k, 4) is equal. K = ?
2. Find the intersect point of the perpendicular from C to the straight-line AB.
3. If the two equation intersects each other at point Q(x,y), then draw the polygon ABCD find the area of the polygon.

Group C: Trigonometry and Probability

1. On each working day James parks his car is a parking station which has three levels. He

parks his car on a randomly chosen level. He always forgets where he has parked, so when he leaves work. he chooses a level at random and searches for his car. If his car is not on that level, he chooses a different level and continues in this way until he finds his car.

1. What is the probability that his car is on the first level he searches?
2. What is the probability that he must search all three levels before he finds his car?
3. What is the probability that on every one of the five working days in a week, his car is not on the first level he searches?
4. (i) 15 + 2 sin = 7

(ii) 7 + 3 = R

1. If R = 4, then sin = ?
2. Find the value of ( + ) from (i) if -.
3. If R = 6 and then solve

stem (ii).