

HSSC MOCK TEST - 156 (SOLUTION)

1. (B) Required number of ways
 $= ({}^6C_1 \times {}^4C_3) + ({}^6C_2 \times {}^4C_2) + ({}^6C_3 \times {}^4C_1) + ({}^6C_4)$

$$= \left(6 \times \frac{4 \times 3 \times 2}{3 \times 2 \times 1}\right) + \left(\frac{6 \times 5}{2} \times \frac{4 \times 3}{2}\right)$$

$$+ \left(\frac{6 \times 5 \times 4}{3 \times 2 \times 1} \times 4\right) + \frac{6 \times 5 \times 4 \times 3}{4 \times 3 \times 2}$$

$$= (24 + 90 + 80 + 15) = 209$$

2. (B) Total number of ways = ${}^{52}C_2$
 Both are diamond = ${}^{13}C_2$

∴ Required probability = $\frac{{}^{13}C_2 + {}^4C_2}{{}^{52}C_2}$

$$= \frac{\frac{13 \times 12}{2 \times 1} + \frac{4 \times 3}{2 \times 1}}{\frac{52 \times 51}{2 \times 1}} = \frac{42}{663}$$

3. (B) The derivative of the composition of two functions is given by the chain rule.

4. (D)

5. (A) ATQ,

$$\frac{1}{2}x^2 = 50$$

$$\Rightarrow x = 10$$

$$\therefore \text{Hypotenuse} = \sqrt{10^2 + 10^2}$$

$$= \sqrt{200} = 10\sqrt{2}$$

6. (A) Number can be 7, 25, 43, 61, 79.....

Remainder when divided by 12 are 7 and 1
 Hence, we can take 2 values of n.

7. (A) The Mean $\mu = \frac{x+y+z}{3}$

The standard deviation σ

$$= \frac{(x-\mu)^2 + (y-\mu)^2 + (z-\mu)^2}{3}$$

After adding constant k

$$\mu^1 = \frac{(x+k) + (y+k) + (z+k)}{3}$$

$$= \frac{x+y+z}{3} + \frac{3k}{3}$$

$$= \mu + k$$

$$\sigma^1 = \sqrt{(x+k-\mu^1)^2 + (y+k-\mu^1)^2 + (z+k-\mu^1)^2}$$

and, $x+k-\mu^1 = x+k-\mu-k = x-\mu$

$y+k-\mu^1 = y+k-\mu-k = y-\mu$

$$z+k-\mu^1 = z+k-\mu-k = z-\mu$$

$$\therefore \sigma^1 = \frac{(x-\mu)^2 + (y-\mu)^2 + (z-\mu)^2}{3}$$

8. (B) $3x + \frac{1}{2x} = 5$

Multiplying both sides by $\frac{2}{3}$

$$\frac{2}{3} \times 3x + \frac{2}{3} \times \frac{1}{2x} = 5 \times \frac{2}{3}$$

$$\Rightarrow 2x + \frac{1}{3x} = \frac{10}{3}$$

Now, $(2x + \frac{1}{3x})^3 = \left(\frac{10}{3}\right)^3$

$$\Rightarrow 8x^3 + \frac{1}{27x^3} + \frac{3 \times 2x}{3x} \left(\frac{10}{3}\right) = \frac{1000}{27}$$

$$\Rightarrow 8x^3 + \frac{1}{27x^3} = \frac{1000}{27} - \frac{20}{3}$$

$$\Rightarrow 8x^3 + \frac{1}{27x^3} = \frac{1000-180}{27}$$

$$= 30 \frac{10}{27}$$

9. (B) $\sin 21^\circ = \frac{x}{y}$

$$BC = \sqrt{y^2 - x^2}$$

$$\therefore \sec 21^\circ = \frac{y}{\sqrt{y^2 - x^2}} = \frac{\sqrt{y^2 - x^2}}{y}$$

$$= \frac{y^2 - y^2 + x^2}{y\sqrt{y^2 - x^2}} = \frac{x^2}{y\sqrt{y^2 - x^2}}$$

10. (C) AB ≠ BA

11. (C) To get the binary equivalent of any number, we need to divide the number by 2 and obtain the remainder as.

$$\frac{10}{2} = 5, \frac{5}{2} = 2, \frac{2}{2} = 1, \frac{1}{2} = 20 \text{ and write}$$

the remainder in the reverse order as 1010

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12. (B) $(x^2 + x - 3)^{319} = a_1 + a_2x + a_3x^2 \dots a_{639}x^{638}$

Put $x = 1$

$(1 + 1 - 3)^{319} = a_1 + a_2 + a_3 \dots a_{639}$

$= (-1)^{319} = -1$

79. (B) As, D I G

↓ ↓ ↓

$4 + 9 + 7 + 5 = 25$

and,

C U T

↓ ↓ ↓

$3 + 21 + 20 + 5 = 49$

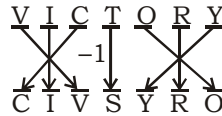
Similarly,

K I C K

↓ ↓ ↓ ↓

$11 + 9 + 3 + 11 + 5 = 39$

80. (D) As,

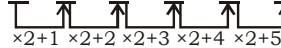


Similarly, T R A I T O R



81. (C) cbabbb/cbabbb/cbabb

82. (B) 3, 7, 16, 35, 74, 153



83. (D) As, $3 \times 4 \times 2 = 24$

Similarly, $9 \times 4 \times 2 = 72$

HSSC MOCK TEST – 156 (ANSWER KEY)

- | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 1. (B) | 11. (C) | 21. (B) | 31. (B) | 41. (A) | 51. (C) | 61. (A) | 71. (D) | 81. (C) | 91. (A) |
| 2. (B) | 12. (B) | 22. (B) | 32. (C) | 42. (A) | 52. (B) | 62. (A) | 72. (D) | 82. (B) | 92. (A) |
| 3. (B) | 13. (C) | 23. (C) | 33. (B) | 43. (B) | 53. (B) | 63. (D) | 73. (B) | 83. (D) | 93. (B) |
| 4. (D) | 14. (A) | 24. (D) | 34. (A) | 44. (D) | 54. (D) | 64. (B) | 74. (B) | 84. (D) | 94. (A) |
| 5. (A) | 15. (D) | 25. (C) | 35. (D) | 45. (B) | 55. (B) | 65. (C) | 75. (D) | 85. (B) | 95. (A) |
| 6. (A) | 16. (A) | 26. (A) | 36. (D) | 46. (C) | 56. (B) | 66. (B) | 76. (A) | 86. (B) | 96. (D) |
| 7. (A) | 17. (B) | 27. (B) | 37. (C) | 47. (B) | 57. (B) | 67. (A) | 77. (A) | 87. (D) | 97. (A) |
| 8. (B) | 18. (A) | 28. (C) | 38. (D) | 48. (B) | 58. (B) | 68. (D) | 78. (C) | 88. (A) | 98. (C) |
| 9. (B) | 19. (A) | 29. (D) | 39. (C) | 49. (D) | 59. (B) | 69. (D) | 79. (B) | 89. (A) | 99. (A) |
| 10. (C) | 20. (C) | 30. (A) | 40. (B) | 50. (B) | 60. (A) | 70. (B) | 80. (D) | 90. (A) | 100. (A) |

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