HSSC MOCK TEST – 167 (SOLUTION)

1. (D) $\lim\limits_{x\to3}\dfrac{4^{x/2}-8}{2^{2x}-64}$ $\left[\dfrac{0}{0}\right]$ from by L-Hospital's Rule

$$\Rightarrow \lim_{x\to3}\frac{4^{x/2}(\log 4)\times\left(\frac{1}{2}\right)-0}{2^{2x}(\log 2)\times(2)-0}$$

$$\Rightarrow \lim_{x\to3}\frac{2^{x}\times\frac{1}{2}\times 2\log 2}{2^{2x}\times 2\log 2}$$

$$\Rightarrow \frac{1}{2}\times\frac{2^3}{2^6}=\frac{1}{16}$$

2. (B)

II	I
(sinθ, cosecθ) → '+' other → '–'	All positive
(tanθ, cotθ) → '+' other → '–'	(cosθ, secθ) → '+' other → '–'
III	IV

3. (A) $\dfrac{d^2y}{dx^2}=\left[\left(1-x\dfrac{dy}{dx}\right)^4\right]^{1/3}$

$$\left(\frac{d^2y}{dx^2}\right)^3=\left(1-x\frac{dy}{dx}\right)^4$$

4. (A) A = {1, 2, 3, 4} and B = {1, 2, 5}
(A×B) = {(1,1), (1,2), (1, 5), (2,1), (2,2), (2,5), (3,1), (3,2), (3, 5), (4,1), (4,2), (4,5)}
(B×A) = {(1,1), (1,2), (1,3), (1,4), (2,1), (2,2), (2,3), (2,4), (5,1), (5,2), (5,3), (5,4)}
Now, (A×B) ∩ (B×A) = {(1,1), (1,2), (2,1), (2,2)}

5. (C) S = 0.3 + 0.33 + 0.333 +.....n terms

$$S=\frac{1}{3}(0.9+0.99+0.999+\ldots\ldots n\text{ terms})$$

$$S=\frac{1}{3}\left[\left(1-\frac{1}{10}\right)+\left(1-\frac{1}{100}\right)+\ldots\ldots n\text{ terms}\right]$$

$$S=\frac{1}{3}(1+1+\ldots\ldots n\text{ terms})-\frac{1}{3}\left(\frac{1}{10}+\frac{1}{100}+\ldots n\text{ terms}\right)$$

$$S=\frac{1}{3}\times n-\frac{1}{3}\times\frac{\frac{1}{10}\left(1-\frac{1}{10^n}\right)}{1-\frac{1}{10}}$$

$$S=\frac{1}{3}\left[n-\frac{1}{9}\left(1-\frac{1}{10^n}\right)\right]$$

6. (B) Word "PARENTS"
No. of permutations = 7!

7. (C) The required Probability = $\dfrac{1}{7}$

8. (A) We know that

$$1^3+2^3+3^3+\ldots\ldots+n^3=\frac{n^2(n+1)^2}{4}$$

The arithmetic mean = $\dfrac{n^2(n+1)^2}{4\times n}$

$$=\frac{n(n+1)^2}{4}$$

9. (C) In the expansion of $\left(2x-\dfrac{1}{3x^2}\right)^6$

$$T_{r+1}={}^6C_r\,(2x)^{6-r}\left(\frac{-1}{3x^2}\right)^r$$

$$T_{r+1}={}^6C_r\,2^{6-r}\left(\frac{-1}{3}\right)^r x^{6-3r}$$

Here, $6-3r=-3\Rightarrow r=3$

The required coefficient = ${}^6C_3\,2^3\left(\dfrac{-1}{3}\right)^3$

$$=20\times8\times\left(\frac{-1}{27}\right)$$

$$=\frac{-160}{27}$$

10. (C) Equation
$5x^2+7x+2=0$

$\alpha+\beta=\dfrac{-7}{5}$ and $\alpha.\beta=\dfrac{2}{5}$

Now, $\dfrac{\alpha^2+\beta^2}{\alpha+\beta}=\dfrac{(\alpha^2+\beta)^2-2\alpha\beta}{\alpha+\beta}$

$$\Rightarrow\frac{\alpha^2+\beta^2}{\alpha+\beta}=\frac{\left(\frac{-7}{5}\right)^2-2\times\frac{2}{5}}{\frac{-7}{5}}$$

$$\Rightarrow\frac{\alpha^2+\beta^2}{\alpha+\beta}=\frac{\frac{49}{25}-\frac{4}{5}}{\frac{-7}{5}}$$

$$\Rightarrow \frac{\alpha^2+\beta^2}{\alpha+\beta} = \frac{\frac{29}{25}}{\frac{-7}{5}} = \frac{-29}{35}$$

11. (C) The number of ways = 6 × 5 = 30

12. (D) The new mean = 4(7 + 3)
= 40

13. (A) 6, 7, 16, 17, 26, 28, 37, 38, 47, 48

$$\text{Mean} = \frac{6+7+16+17+26+28+37+38+47+48}{10}$$

$$\bar{x} = \frac{270}{10} = 27$$

$$\sum\left(x_i-\bar{x}\right)^2 = (6-27)^2+(7-27)^2+(16-27)^2$$
$$+(17-27)^2+(26-27)^2+(28-27)^2$$
$$+(37-27)^2+(38-27)^2+(47-27)^2+(48-27)^2$$

$$\sum\left(x_i-\bar{x}\right)^2 = 441+400+121+100+1+1+100$$
$$+121+400+441$$

$$\sum\left(x_i-\bar{x}\right)^2 = 2126$$

$$\text{Standard Deviation} = \sqrt{\frac{\sum\left(x_i-\bar{x}\right)^2}{n}}$$

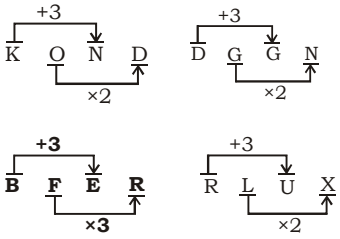
$$= \sqrt{\frac{2126}{10}} = 14.58$$

81. (C) India has 7th largest area country, while **Australia** has the **6th** largest area.

82. (D) Sanitation keeps illness away whilE care keeps **accident** away.

83. (B) Except '**Brinjal**', others are root vegitables.

84. (C)



85. (A) $\frac{12+13+17}{3} = 14$

$\frac{19+11+18}{3} = 16$

$\frac{16+15+11}{3} = 14$

86. (B) 12 × 4 + 9 = 57
16 × 4 + 6 = 70
19 × 4 + 7 = 83

87. (A) 54 Q 9 P 6 R 3 S 4
After interchanging the signs as per given details,
= 54 ÷ 9 – 6 + 3 × 4
= 6 – 6 + 12 = 12

HSSC MOCK TEST – 167 (ANSWER KEY)

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

Note:- If your opinion differs regarding any answer, please message the mock test and question number to 8860330003

Note:- Whatsapp with Mock Test No. and Question No. at 7053606571 for any of the doubts. Join the group and you may also share your suggestions and experience of Sunday Mock Test.

Note:- If you face any problem regarding result or marks scored, please contact 9313111777