## SSC MOCK TEST - 239 (SOLUTION)

1. (A) $56: 30:: 78: 56$

2. (A) As,
'Medicine' is related to 'Disease'.
Similarly,
'Food' is related to 'Hunger'.
3. 



Similarly,

4.
(D)


Similarly,

| N M | S H | F V | K |
| :---: | :---: | :---: | :---: |
| $\left\llcorner_{\text {Opp }}{ }^{\text {d }}\right.$ | $\square_{\text {Opp }}{ }^{\text {. }}$ |  | Opp. |

5. (C) As,
'Jhalrapatan' is situated in 'Rajasthan'. and others are situated in 'Gujrat.
6. (C) $1029 \Rightarrow(32)^{2}+5$
$261 \Rightarrow(16)^{2}+5$
$\mathbf{5 8 0} \Rightarrow(24)^{2}+4$
$789 \Rightarrow(28)^{2}+5$
7. (C) As,


Similarly,

8. (D)

9. (A) $\frac{1537}{L+2}, \frac{1539}{\uparrow L+4}, \frac{1543}{\uparrow L+6} \frac{1549}{\uparrow L+8} \frac{1557}{\uparrow ~}+\frac{1567}{10 \uparrow}$
10. (B) $\quad \underline{5} \quad 10 \quad \underline{26} \quad 50 \quad 122 \quad 170$

11. (A) $12+81-27 \times 9 \div 3=36$

After interchanging the signs,

$$
\begin{aligned}
& \Rightarrow 12+81 \div 27 \times 9-3=36 \\
& \Rightarrow 12+3 \times 9-3=36 \\
& \Rightarrow 12+27-3=36 \\
& \Rightarrow 36=36
\end{aligned}
$$

12. 

(D)

13.
(B) $15^{2}-8^{2}=225-64=161$
$18^{2}-9^{2}=324-81=243$
$24^{2}-12^{2}=576-144=432$
14. (B)

I. $P$
II. O
III. O
IV. P

Hence only conclusions I and IV follow.
15. (C) $\mathrm{fgh} / \mathrm{ghf} / \mathrm{hfg} / \mathrm{fgh} / \mathrm{ghg} / \mathrm{hfg}$
16. (B)
17. (B)

18. (C) 19
19. (B) Forehead, Nose, Chin, Chest, Waist.
20. (D) As,
$14+17=31 \Rightarrow 31^{2}=961$
Similarly, $13+19=32 \Rightarrow 32^{2}=1024$
21. (C) A.T.Q.
$\mathrm{K}+\mathrm{L}+\mathrm{M}=24 \times 3$
$\mathrm{K}+\mathrm{L}+\mathrm{M}=72$
$\mathrm{K}+\mathrm{L}+\mathrm{M}+\mathrm{N}=23 \times 4$
$\mathrm{K}+\mathrm{L}+\mathrm{M} \mathrm{N}=92$
R's age $=\mathrm{N}+2$
and $\mathrm{L}+\mathrm{M}+\mathrm{N}+\mathrm{R}=22.5 \times 4$
$\mathrm{L}+\mathrm{M}+\mathrm{N}+\mathrm{N}+2=90$
$L+M+2 N=88$
from eq(i) and eq(ii)
$\mathrm{N}=20$
from eq(iii)
$L+M+40=88 \Rightarrow L+M=48$
from eq(i)
$K+48=72 \Rightarrow K=24$
Hence K's age $=24$ years
22. (A) Number of male clowns who are also ringmasters but not acrobats $=17$
23. (A)
24. (D)
25. (C)
26. (D) Pune Airport - The airfield was established in 1939 as RAF Poona to provide air security to the city of Bombay. In May 1947, the Royal Indian Air Force took charge of the airfield. The Pune Airport was declared as a customs airport in January 1997 for the export of specified goods. With effect from 12 December 2005, Pune Airport was certified as an international airport for the clearance of passengers and baggage.
Kushok Bakula Rimpochee Airport is in Leh. It is the 23rd highest commercial airport in the world.
Bagdogra Airport is in Siliguri, West Bengal. It is operated as a civil enclave at AFS Bagdogra of the Indian Air Force. The central government of India conferred customs airport status to the airport in 2002 with limited international operations.
Begumpet Airport was established in 1930 by Mir Osman Ali Khan, in Hyderabad.
27. (D) John Macpherson - (1785-1786)

Earl Cornwallis - (1786-1793 and 1805)
John Shore - (1793-1798)
Lord Wellesley - (1798-1805)
Fourth Anglo - Mysore War was a conflict between the Kingdom of Mysore against the British East India Company and the Hyderabad Deccan in 1798-99. The ruler Tipu Sultan was killed in the battle.
28. (D) Sir Alexander Cunningham is known as the Father of Indian Archeology. The Harappa site was first briefly excavated by him in 1872-73.
William Jones was most noted for his use of the $\pi$ to represent the ratio of the circumference of a circle to its diameter. Ashoka inscriptions were first deciphered by James Prinsep in 1837.
29. (C) Lead $-327.5^{\circ} \mathrm{C}$ Zinc $-419.5^{\circ} \mathrm{C}$ Silver $-961.8^{\circ} \mathrm{C}$ Tin $-231.9^{\circ} \mathrm{C}$
30. (B) Mary Anderson - Windshield Wiper Stephanie Louise Kwolek - Kevlar Stephen Gary Wozniak co-founded Apple Inc. in 1976.
32. (D) Cesium and Xenon - 36 Scandium - 13
33. (A) NH 28 provides main connectivity from India(Varanasi) to Nepal(Kakrahwa ).
NH 26A - from Jeruwakhera(M.P) to Bina(Bihar).
35. (B) Article 138 - Enlargement of the jurisdiction of the Supreme Court
Article 143 - Power of President to consult Supreme Court
Article 150 - Form of accounts of the Union and of the States
37. (A) The Election Commission operates under the authority of Constitution per Article 324. Election Commission was formed 25 January 1950 (Later celebrated as National Voters Day).
Election Commissioners - Sunil Arora(Chief), Ashok Lavasa and Sushil Chandra. A Chief Election Commissioner has never been impeached in India. In 2009, just before the 2009 Lok Sabha Elections, Chief Election Commissioner N. Gopalaswami sent a recommendation to President Prathibha Patil to remove Election Commissioner Navin Chawla. Sukumar Sen was the first Chief Election Commissioner.
40. (C) Tapi - Chimer waterfall Luni, the Indian river with saline water that doesn't drain into any sea or ocean. It originates in the Pushkar valley of the Aravalli Range.
The Tungabhadra River starts and flows through the state of Karnataka, before flowing along the border between Telangana, Andhra Pradesh and ultimately joining the Krishna River. In the epic Ramayana, the Tungabhadra River was known by the name of Pampa.
41. (A) Dalkhai - Odisha

Thang Ta - Manipur
Kalbelia - Rajasthan
42. (A) Vece Paes represented the Indian team in the 1972 Munich Olympics, that won the bronze medal.
43. (A) Kye Monastery - Himachal Pradesh Hemis Monastery - Ladakh
Tabo Monastery - Himachal Pradesh
45. (A) Deposit Insurance and Credit Guarantee Corporation Act, 1961 - to provide for the establishment of a Corporation for the purpose of insurance of deposits and guaranteeing of credit facilities and for other matters connected therewith or incidental thereto.
The Industrial Finance Corporation of India Act, 1948 - to provide medium and long term finance to industry.
Banking Regulation Act, 1949 is a legislation in India that regulates all banking firms in India.
46. (C) Interpreter is a program that executes instructions written in a high-level language.
An arithmetic logic unit (ALU) is a digital circuit used to perform arithmetic and logic operations. It represents the fundamental building block of the central processing unit (CPU) of a computer.
47. (C) Pepsin breaks down proteins into smaller amino acids.
Carotenes are photosynthetic pigments important for photosynthesis. Carotenes contain no oxygen atoms.
Keratin is the type of protein that makes up your hair, skin, and nails.
Progesterone is sex hormone involved in the menstrual cycle, pregnancy, and embryogenesis of humans and other species.
48. (B) Rajnath Ram - advisor of NITI Aayog.

Ashima Goyal - Member of Economic Advisory Council Prime Minister, an independent director at Edelweiss Financial Services, IDBI bank and SBI General Insurance.
Sajjid Chinoy - J.P. Morgan's Chief India Economist.
51. (D) Let radius of circles $\Rightarrow r_{1}=4 x$

$$
\begin{aligned}
& r_{2}=5 x \\
& r_{3}=7 x
\end{aligned}
$$

Required ratio

$$
\begin{aligned}
& =\pi\left[(5 x)^{2}-(4 x)^{2}\right]: \pi\left[(7 x)^{2}-(5 x)^{2}\right] \\
& =\pi(9 x)^{2}: \pi\left(24 x^{2}\right) \\
& =9: 24 \\
& =3: 8
\end{aligned}
$$

52. (A) Side of Rhombus $\Rightarrow \sqrt{\left(\frac{D_{1}}{2}\right)^{2}+\left(\frac{D_{2}}{2}\right)^{2}}$

$$
=\sqrt{16^{2}+12^{2}}
$$

$$
=\sqrt{256+144}
$$

$$
=\sqrt{400}
$$

$$
=20 \mathrm{~cm}
$$

Perimeter of rhombus $\Rightarrow 20 \times 4=80 \mathrm{~cm}$
53.
C) $\frac{5 \sin ^{2} 30^{\circ}+\cos ^{2} 45^{\circ}-4 \tan ^{2} 30^{\circ}}{2 \sin 30^{\circ} \cos 30^{\circ}+\tan 45^{\circ}}$

$$
\begin{aligned}
& =\frac{\frac{5}{4}+\frac{1}{2}-\frac{4}{3}}{\frac{\sqrt{3}}{2}+1} \\
& =\frac{(15+6-16) \times 2}{12 \times(2+\sqrt{3})}
\end{aligned}
$$

$=\frac{10}{12 \times(2+\sqrt{3})}$
Rationalizing above equation.

$$
\begin{equation*}
=\frac{5}{6} \times \frac{(2-\sqrt{3})}{(2+\sqrt{3})(2-\sqrt{3})}=\frac{5}{6}(2-\sqrt{3}) \tag{i}
\end{equation*}
$$

54. (A) $x^{4}+x^{2} y^{2}+y^{4}=896$
and $x^{2}-x y+y^{3}=32$
From (i) equation
$x^{4}+x^{2} y^{2}+y^{4}=896$
$\Rightarrow\left(x^{2}-x y+y^{2}\right)\left(x^{2}+x y+y^{2}\right)=896$
$\Rightarrow 32 \times\left(x^{2}+x y+y^{2}\right)=896$
$x^{2}+x y+y^{2}=28 \ldots \ldots$.(iii)
Adding equation (ii) and (iii)
$2\left(x^{2}+y^{2}\right)=60$
$x^{2}+y^{2}=30$. $\qquad$
Subtracting (ii) from (iii)
$2 x y=4$
Adding equation (iv) and (v)
$x^{2}+y^{2}+2 x y=30+4$
$\Rightarrow(x+y)^{2}=34$
$x+y=\sqrt{34}$
55. (B) ATQ,
$x^{2}+y^{2}+6 x+8 y-11=0$
Comparing from standard equation of the circle $x^{2}+y^{2}+2 f x+2 f y+c=0$ $g=3, f=4$, and $c=-11$

Then,

$$
\text { Centre } \equiv(-g,-f)=(-3,-4)
$$

And radius $=\sqrt{g^{2}+f^{2}-c}$

$$
\begin{aligned}
& =\sqrt{9+16+11} \\
& =6
\end{aligned}
$$

56. (C) ATQ,

$\angle \mathrm{B}=\angle \mathrm{C}=78^{\circ}, \angle \mathrm{CBE}=24^{\circ}$ and $\angle \mathrm{BCD}$ $=51^{\circ}$
In $\triangle \mathrm{BCE}$,

$$
\begin{aligned}
\angle \mathrm{BEC} & =180^{\circ}-24^{\circ}-78^{\circ} \\
& =78^{\circ}
\end{aligned}
$$

Hence,
Sides BC = BE
In $\triangle \mathrm{BCD}$,

$$
\begin{align*}
\angle \mathrm{BDC} & =180^{\circ}-78^{\circ}-51^{\circ} \\
& =51^{\circ} \tag{ii}
\end{align*}
$$

Hence, side BC = BD
From equation (i) and (ii)
$\mathrm{BE}=\mathrm{BD}$
$\angle \mathrm{BED}=\angle \mathrm{BDE}=\alpha($ Let $)$
then,
In $\triangle \mathrm{BED}$,
$\alpha+\alpha+54^{\circ}=180^{\circ}$
$\because \quad\left(\angle \mathrm{DBE}=78^{\circ}-24^{\circ}=54^{\circ}\right)$
$\alpha=63^{\circ}=\angle \mathrm{BDE}$
$\angle \mathrm{BDE}=51^{\circ}+\angle \mathrm{CDE}$
$\Rightarrow 63^{\circ}=51^{\circ}+\angle \mathrm{CDE}$
$\angle \mathrm{CDE}=12^{\circ}$
57. (B)


Draw a line from P to A
If $\angle \mathrm{AOB}=68^{\circ}$
Then, $\angle \mathrm{APB}=\frac{\angle A O B}{2}=\frac{68}{2}=34^{\circ}$
Line $P Q$ is diameter of the half circle.
Then, $P Q$ is make angle $90^{\circ}$ on the circumference of the half circle
$\therefore \quad \angle \mathrm{PAQ}=90^{\circ}$
Now, In $\triangle \mathrm{AXP}$

$$
\begin{aligned}
\angle \mathrm{AXP} & =180^{\circ}-90^{\circ}-34^{\circ} \\
& =56^{\circ}
\end{aligned}
$$

58. (B) Let Suresh and Mohan do the work in $x$ hrs.

$x=\sqrt{18 \times 8}$
$x=12$
Suresh does the work in 20 hrs .
Mohan does the work in 30 hrs .
Ratio of efficiency of Mohan and Suresh
= $2: 3$
5 units $\longrightarrow$ Rs. 4500
2 units
Rs. $\frac{4500}{5} \times 2=$ Rs. 1800
Hence,
Share of Mohan out of total wages is Rs. 1800.
59. (C)Volume of Frustum $=\frac{1}{3} \pi\left(\mathrm{R}^{2}+r^{2}+\mathrm{R} r\right) h$

$$
\begin{aligned}
& =\frac{1}{3} \pi\left(5^{2}+4^{2}+5 \times 4\right) 21 \\
& =\frac{1}{3} \pi(25+16+20) 21 \\
& =1342 \mathrm{~cm}^{3}
\end{aligned}
$$

60. (C) Total distance covered by wheel in one rotation.
$=\pi \mathrm{d}$
Wheel rotation 400 times per minute.
$=\frac{\pi d \times 400}{\text { minute }}$
$=\frac{\pi \times 70 \times 10^{-2} \times 10^{-3} \times 400}{\frac{1}{60}}\left(\frac{\mathrm{~km}}{\mathrm{hr}}\right)$
$=\frac{22}{7} \times 70 \times 60 \times 400 \times 10^{-5}$
$=52.8 \mathrm{~km}$
61. (D) ATQ,
$x^{2}+x=5$
Adding equation (i) $(2 x+1)$ both sides
$x^{2}+x+2 x+1=5+2 x+1$
$\Rightarrow x^{2}+3 x+1=6+2 x$
$\Rightarrow x(x+3)+1=2(x+3)$
Dividing by $(x+3)$ both sides
$x+\frac{1}{(x+3)}=2$

Adding 3 both sides
$(x+3)+\frac{1}{(x+3)}=5$
Taking cube both sides
$\left((x+3)+\frac{1}{x+3}\right)^{3}=(x+3)^{3}+\frac{1}{(x+3)^{3}}+3((x+3)$

$$
\left.\times \frac{1}{(x+3)}\right)
$$

$125=(x+3)^{3}+\frac{1}{(x+3)^{3}}+3 \times 5$
Hence, $(x+3)^{3}+\frac{1}{(x+3)^{3}}=125-15=110$
62. (A) ATQ,

$$
\begin{aligned}
& \frac{A}{B}=\frac{128}{100} \\
& C=\frac{3}{4} \times 228=171 \text { units }
\end{aligned}
$$

$$
\begin{aligned}
\text { Requird percentage } & =\frac{171-128}{128} \times 100 \\
& =33.6 \%
\end{aligned}
$$

63. (C) ATQ,

10 digits number are $5432 y 1749 x$ $x=6$ By putting and $y=4$ then the number are divisible by 72
Now,

$$
\begin{aligned}
& \sqrt{5 x+4 y} \\
= & \sqrt{5 \times 6+4 \times 4} \\
= & \sqrt{30+16} \\
= & 6
\end{aligned}
$$

64. (D) Effective Rate $=55.52 \%$

$$
\text { C.I. }=\text { Rs. } 7200 \times \frac{55.52}{100}=\text { Rs. } 3997.44
$$

Hence, Compund interest is Rs. 3397
65. (D) Total number of students $=75$


$$
\begin{aligned}
& \text { Average }=\frac{25 \times 5 x+50 \times 3 x}{75} \\
\Rightarrow \quad 11 x & =66 \times 3 \\
\Rightarrow \quad x & =18 \\
3 x & =54
\end{aligned}
$$

Hence, Average score of the girls is 54.
66. (C) Let Rs. P is the principal

$$
=\frac{P \times 5 \times 2}{100}+\frac{P \times 8 \times 3}{100}+\frac{P \times 9 \times 10}{100}=\text { Rs. } 992
$$

$$
\Rightarrow \frac{31 P}{25}=992
$$

$$
\mathrm{P}=\mathrm{Rs} .800
$$

67. (A) ATQ,
C.P. $=\left(1200 \times \frac{85}{100} \times \frac{80}{100}+56\right)=$ Rs. 872
S.P. = Rs. 1090

Gain percentage $=\frac{1090-872}{872} \times 100$

$$
=25 \%
$$

68. (C) Let B's income Rs. $x$ and D's income Rs. $y$
Then,
$\mathrm{A} \longrightarrow$ Rs. $(x+140)$
C

$$
\longrightarrow \text { Rs. }(y+80)
$$

$$
\frac{A}{C}=\frac{x+140}{y+80}=\frac{2}{3}
$$

$$
3 x+420=2 y+160 \ldots \ldots \text { (i) }
$$

$\frac{B}{D}=\frac{x}{y}=\frac{1}{2}$

$$
\begin{equation*}
2 x=y . \tag{ii}
\end{equation*}
$$

From equation (i) and (ii)
$x=$ Rs. 260
$y=$ Rs. 520
Now,

$$
\xrightarrow{\mathbf{A}} \rightarrow \xrightarrow{\mathbf{B}} \rightarrow \xrightarrow{\mathbf{C}} \rightarrow \xrightarrow{\mathbf{D}} \rightarrow
$$

Rs. $(240+140)$ Rs. 260 Rs. $(520+80)$ Rs. 520
Rs. 600
Rs. 260
Rs. 600
Rs. 520
69. (D) Karan and his daugther present age $=9 x$ and $4 x$
$9 x-\mathrm{P}+4 x-\mathrm{P}=44$
$13 x-2 \mathrm{P}=44$ $\qquad$
$\frac{9 x-P}{4 x-P}=\frac{8}{3}$
$27 x-3 \mathrm{P}=32 x-8 \mathrm{P}$
$5 \mathrm{P}=5 x$
$\mathrm{P}=x$
From equation (i) and (ii)

$$
\begin{aligned}
13 x-2 x & =44 \\
11 x & =44 \\
x & =4
\end{aligned}
$$

Hence, 4 years

## $K D$ <br> Campus <br> K D Campus Pvt. Ltd

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70. (B) Length of hypotenuse $=\sqrt{24^{2}+7^{2}}$

$$
=25 \mathrm{~cm}
$$

Inradius $=$ Area of traingle / Semiperimeter of triangle

Area of triangle $=\left(\frac{1}{2}\right) \times 24 \times 7=84 \mathrm{~cm}^{2}$
Semiperimeter of triangle
$=\frac{(25+24+7)}{2}=28 \mathrm{~cm}$
Inradius $=\frac{84}{28}=3 \mathrm{~cm}$
71. (C) Let total number of students are $x$ Number of girls students $=\frac{4}{9} x$ Number of boys students $=\frac{5}{9} x$
$\frac{3}{5}$ th of the number of boys students are below 12 years $=\frac{3}{5} \times \frac{5}{9} x=\frac{x}{3}$
$\frac{7}{12}$ th of the number of girls students are
below 12 years $=\frac{7}{12} \times \frac{4}{9} x=\frac{7 x}{27}$
Total number of students below 12 years
$=\frac{x}{3}+\frac{7 x}{27}$
$16 x=480 \times 27$
$\Rightarrow \quad x=810$
$\Rightarrow$ Hence $\frac{5}{18} x=\frac{5}{18} \times 810=225$
72. (C) Required ratio $=\frac{80 \times 15}{85 \times 40}=\frac{6}{17}$
73. (C) Required percentage $=\frac{85-75}{75} \times 100$

$$
=\frac{10}{75} \times 100=13.33 \%
$$

74. (A) Extra amount $=(20 \times 60+12 \times 40-20 \times 50-$ $12 \times 35$ )
$=$ Rs. 260
75. (A) Total amount spent family in year 2019
$=15 \times 80+20 \times 60+12 \times 40+40 \times 85+8 \times 72$
$=$ Rs. 6,856

## MEANINGS IN ALPHABETICAL ORDER

Alleviate Contemplate Dilemma

Disastrous
Ensure
Envisage
Idealize
Indigenization

Induction
Indulge
Intense
Magnify
Premature
Salutary
Sublime
Terrible
Vicious
Virtuous
make less severe(mitigate) look thoughtfully for a long time at
a difficult situation or problem in which you have to make a choice
causing great damage
make certain that something will occur conceive of as a possibility or a desirable future event
regard as perfect than in reality the action of bringing something under the control
introducing someone in a job etc.
allow oneself to enjoy the pleasure of of extreme force make something appear larger than it occurring before the usual time too early producing good effects
of very great excellence extremely bad deliberately cruel
having or showing high moral standards

ती व्र ता कम हा` ना गहन चिं तन करना उ हा - प` ह
ज्य दा नु कस न फ्हुँ चा सु निश्चित करना
परिकल फा करना

अ द y मा नना
परिस्थितिका का बू मे
किस को समा वे श्न करन
विलिन हा` ना (लगन)
अ यक्कती व्र
आ का र बढ़ T ना
निध रितस्मयस फ्रले हा'
ला P I दा य
उ₹ कृष्ट
${ }^{9} \mathrm{~T}$ य वह
दाँ ण $\uparrow$
अचछा इ से $\% ा$ रा हु

## SSC MOCK TEST - 239 (ANSWER KEY)



