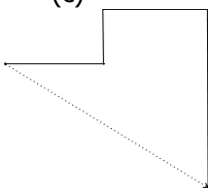
SSC Test Series -26. Solution

(New Pattern)

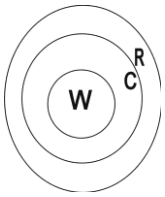
1	A	26	A	51	A	76	C
2	B	27	D	52	A	77	B
3	A	28	D	53	A	78	B
4	D	29	B	54	C	79	D
5	C	30	A	55	D	80	D
6	A	31	C	56	A	81	A
7	B	32	C	57	C	82	B
8	D	33	B	58	B	83	D
9	D	34	B	59	C	84	A
10	D	35	C	60	A	85	A
11	B	36	A	61	B	86	C
12	D	37	D	62	C	87	D
13	C	38	C	63	A	88	C
14	A	39	A	64	B	89	D
15	C	40	C	65	D	90	B
16	B	41	D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

REASONING AILITY

1. (c) You enter and exist a highway by a ramp and you enter and exit a house by a door.
2. (b) A vamp is part of a shoe, and hood is part of a car.
3. (a)
4. (d) $\frac{18\times18}{2}=\frac{324}{2}$ =162
   SIMILARLY
   36× 36/ 2= 1296/2= 648
5. (C) Loss of memory is referred to as Amnesia. Similarly, loss of movement is referred to as Paralysis.
6. (a) 72-41=125
   30 -12= 18
   51-42=9
   20-11= 9
   Except 125, the rest of the difference are one of the factor of 9.
7. (b) Except Nagpur, all are north Indian cities.
8. (*) Read 'Stream' as 'Stem'.
   Except In others second is a part of first whereas chair and sofa are different types.
9. (d) 5+2=7 ,6 +3=9,2+4=6
   But 3+5=8 ≠ 6
10. (d) a b c/ c b a / a b c / c b|
11. (b) 13 8 9 17 14 22
    ↓ ↓ ↓ ↓ ↓ ↓
    M H I Q N V
    1 12 7 5 2 18 1
    ↓ ↓ ↓ ↓ ↓ ↓ ↓
    A L G E B R A
    4 21 7 18 13 1
    ↓ ↓ ↓ ↓ ↓ ↓
    D U G R M A
12. (d) 5×8 =28 →5 ×8=40 →5+8=13,
    13-1 =12→40 -12 =28
    3×7 =12 →3× 7= 21→3+7=10,
    10-1= 9→ 21 -9 = 12
    8× 6= 35 →8 × 6=48→8+6=14,
    14-1=13 →48 -13 =35
    13× 13=? →13×13 =169→ 13+ 13 = 26,
    26-1 = 25→ 169 -25 = 144
13. (c) 4× 8+3=32+3 =35
    7× 6 +7=42=42+7 =49
    9×8+9 =72 +9 =81
14. (a) $(7)^2+(5)^2+(3)^2$ =49+25 +9 =83
    $(6)^2+(4)^2+(2)^2$ =36+16 +4=56
    $(8)^2+(9)^2+(1)^2$ =64+81+1 =146
15. (c)



    It is clear from the diagram that I am in south-east direction with respect to the original position.
16. (b) 1 .3 2. 5



17. (d) 12×2+3=27
    27×3+4=85
    85×4+5=345
    345×5+6 =1731
18. (d) Comparing (i) and (iii) dice we have,

Top	3	2	1
Bottom	4	5	6

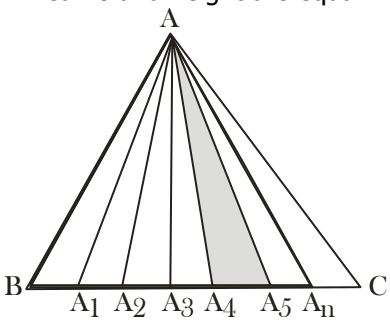
19. (b) Some teachers may be writers and viceversa.
20. (b)
21. (d) The figure may be labeled as shown.

22. (c) Let x and y be the ten's and unit's digits respectively of the numeral denoting the women's age. Then, woman's age= (10x+y) years; husband's age = (10y+x) years.
Therefore
(10+x)-(10x+y) =(1/11) (10y+x+10x+y)
(9y-9x)=(1/11)(11y+11x)=(x+y)
10x=8y x/y = 4/5
10x +y =10× 4+5=45
23. (c),
24. (d),
25. (c)

QUANTITATIVE APTITUDE

26. (a) 1st term $\Rightarrow$ (c - b) z = (a – c) (c – a + b)
= (b – a) {(b + a) – c}
$\Rightarrow$ (b – a) (b + a) – (b – a) c
$= b^2 - a^2 - ca + ab$ .....(i)
2nd term $\Rightarrow$ (c – b) y = (c – b) (c – a + b)
= (c – b) {(c + b) – a}
$\Rightarrow$ (c – b) (c + b) – (c – b) a
$= c^2 - a^2 - ca + ab$.....(ii)
3rd term $\Rightarrow$ (a – c) z = (a – c) (a – b + c)
= (a – c) {(a + c) – b}
$\Rightarrow$ (a – c) (a + c) – (a – c) b
$= a^2 - c^2 - ab + bc$.....(iii)
From (i), (ii) and (iii)
(b – a) x + (c – a) y + (a – c) z
$= b^2 - a^2 + c^2 - b^2 + a^2 - c^2 - bc + ac - ca + ab + bc = 0$

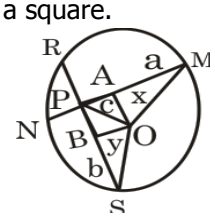
27. (d) Total (n + 1) triangle will be ormed whose base are same and height are equal



So, that area of ΔABC = (n + 1) × Area of ΔAA_4A_5
= (n +1) × K q. cm.

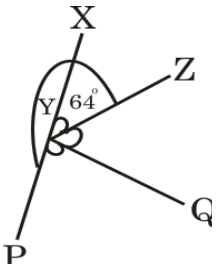
28. (d) (d) $\sqrt{4a-9}+\sqrt{4x+9}=5+\sqrt{7}$
$\Rightarrow (\sqrt{4x-9}+\sqrt{4x+9})(\sqrt{4x-9}-\sqrt{4x+9})$
$= 4x-9-4x-9$
$\Rightarrow (5+\sqrt{7})(\sqrt{4x-9}-\sqrt{4x+9}) = -18$
$\Rightarrow \sqrt{4x-9}-\sqrt{4x+9} = -\frac{18}{5+\sqrt{7}} \times \frac{5-\sqrt{7}}{5-\sqrt{7}}$
$\Rightarrow \sqrt{4x-9}-\sqrt{4x+9} = -\frac{18}{25..7}$
$\Rightarrow (4x-9)-\sqrt{4x+9} = -\frac{18(5-\sqrt{7})}{18}$
$\Rightarrow \sqrt{4x-9}-\sqrt{4x+9} = -(5-\sqrt{7})$ ....(i)
$\sqrt{4x-9}+\sqrt{4x+9} = (5+\sqrt{7})$ (given ...(ii)]
$2\sqrt{4x-9} = 2\sqrt{7}$
$\Rightarrow \sqrt{4x-9} = 7$
$\Rightarrow 4x-9 = 7$
$\Rightarrow 4x = 16$
$\Rightarrow x = 4$

29. Let MN be 2a and RS be 2 b unit, and OA be x and OB be y unit
So that AOBP is a square.



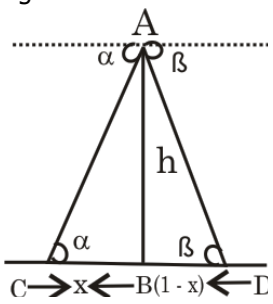
So, AO=PB; OB=PA
In Δ OAM; $a^2 + x^2 = OM^2$....(i)
In Δ OBS; $b^2 + y^2 = OS^2$ ...(ii)
$OM^2 + OS^2 = a^2 + x^2 + b^2 + y^2$...(iii)
In Δ OPA; $x^2 + y^2 = c^2$ ....(iv)
$2OM^2 = c^2 + a^2 + b^2$
$OB = \sqrt{\frac{a^2+b^2+c^2}{2}}$

30. (a) $\angle XYZ + \angle ZYQ = \angle QYP = 180^\circ$



Or $64^\circ + 2\angle ZYQ = 180$ [ZYQ= $\angle$ QYP]
So that ZYQ=58º
$\angle XYQ = \angle XYZ + \angle ZYQ = 64^\circ + 58^\circ = 122^\circ$

31. (c)) In right angled Δ ABC



$\Rightarrow \tan\alpha = \frac{AB}{BC} = \frac{h}{x}$
$\Rightarrow$ x tan α = h or x = h/tan α
In right angled Δ ABD
$\Rightarrow$ tan β =AB/AD=h/1-x

$\Rightarrow h=\tan\beta - x\tan\beta$

$\Rightarrow h=\tan\beta - \frac{h}{\tan\alpha} \times \tan\beta$

$\Rightarrow h=\frac{\tan\alpha\tan\beta - h\tan\beta}{\tan\alpha}$

$\Rightarrow h\tan\alpha = \tan\alpha\times\tan\beta - h\tan\beta$

$\Rightarrow h(\tan\alpha+\tan\beta)=\tan\alpha.\tan\beta)$

$\Rightarrow h=\frac{\tan\alpha\times\tan\beta}{\tan\alpha+\tan\beta}$km

32. (c) $\frac{A}{B}=\frac{4}{5}$

(A+B)'s 1 day work =9

(A+B)'s 7 day work =63

As given in 3 days 37% of the work is completed

So that total work =100

C's 3 day work =37 – (9×3)=10

C's 1 day work =10/3

A will complete the work = 100/4=25 days

B will complete the work =100/5=20 days

C will complete the work = $\frac{100}{\frac{10}{3}}=30$ days

33. (b) $\frac{\sin^6\theta-\cos^6\theta}{\sin^2\theta-\cos^2\theta}=\frac{(\sin^2\theta)^3-(\cos^2\theta)^3}{\sin^2\theta-\cos^2\theta}$

$\Rightarrow \frac{(\sin^2\theta-\cos^2\theta)(\sin^4\theta+\cos^4\theta+\sin^2\theta.\cos^2\theta)}{\sin^2\theta-\cos^2\theta}$

$\sin^4\theta+\cos^4\theta+2\sin^2\theta.\cos^2\theta-\sin^2\theta.\cos^2\theta$

$(\sin^2\theta+\cos^2\theta)^2-\sin^2\theta.\cos^2\theta$

34. (b) Let the speed of A be x km/hrs and B be y km/hrs.

$\frac{60}{x-y}=6$

x-y=10 …(i)

ATQ,

$\frac{60}{2x-2y}=5$

$\frac{2x-6y}{3}=12$

$\Rightarrow 2x-6y=36$ ....(ii)

6x-6y=60 .....(iii)

$\underline{\quad - \quad + \quad -}$

-4x = - 24

X=6 km/hrs.

35. (c) Percentage growth = $\left(\frac{1}{8}\times100\right)\%=12.5\%$

Height after two years =$64\times\left(1+\frac{12.5}{100}\right)$

$=64\times\frac{9}{8}\times\frac{9}{8}=81$cm

36. (a) Let the sum be Rs. P

$SI=\frac{Pr\times3}{100}=\frac{3Pr}{100}$

$CI=P\left[\left(1+\frac{r}{100}\right)^3-1\right]$

$=P\left[1+\frac{r^3}{100^3}+\frac{3r^2}{100^2}+\frac{3r}{100}-1\right]$

$P\left[\frac{r^3}{100^3}+\frac{3r^2}{100^2}+\frac{3r}{100}\right]$

$SI-SI=P\left[\frac{r^3}{100^3}+\frac{3r^2}{100^2}+\frac{3r}{100}\right]-\frac{3Pr}{100}$

$x=P\left[\frac{r^3}{100^3}+\frac{3r^2}{100}\right]$

$P\left(\frac{r^2}{100^3}\right)(r+300)$

$P=\frac{r(100)^3}{r^2(r+300)}$

Here, x Rs.608 (given) and r4% per annum

$P=\frac{608\times100\times100\times100}{4\times4\times(4+300)}$

P=Rs. 1,25,000

37. (d) capacity of cask $=\frac{6}{1-\left(\frac{121}{144}\right)^{1/2}}$

$=\frac{6}{1-\left(\frac{11}{12}\right)^{1\times\frac{1}{2}}}$

$=\frac{6}{1-\frac{11}{12}}=\frac{6}{\frac{1}{12}}=72$ litres

38. (c) Maximum value of $\sin^6\theta+\cos^6\theta=1$

39. (a) 20 pieces $\rightarrow$ (3+x) min

60 pieces $\rightarrow$(8-3-x) min

$\frac{20}{3+x}+\frac{60}{5-x}=20$

$5-x+9+3x=15-3x+5x-x^2$

$14+2x=15+2x-x^2$

$x^2=1$

x=1

20 pieces $\rightarrow$4 min

160 pieces $\rightarrow$32 min.

40. (c) Let the CP of the article br Rs. 100 and its SP be x.

$\frac{100-x}{100}\times100=\frac{2x-100}{100}\times100$

$100-x=2x-100$

$3x=200$

$x=\frac{200}{3}$

Loss% = 100-$\frac{200}{3}$

100/3=$33\frac{1}{3}\%$

41. (d) Let the marked price be x

CP= $\frac{13}{15}$x

SP = $\frac{112}{100}$x

So that Profit = $\frac{112x}{100}-\frac{13x}{15}$

$\frac{336x-260x}{300}=\frac{76}{300}x$

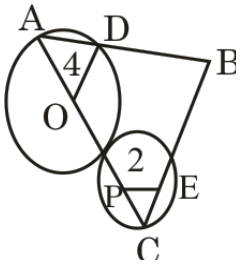
Profit % = $\frac{76}{300}\times\frac{15}{13x}\times100$

$=\frac{380}{13}\%$

$=29\frac{3}{13}\%$

42. (a)

$\angle$ OAD= $\angle$ODA=45º



$\angle$PCE= $\angle$PEC=45º

$\angle$ABC=180º-(45+45)=90º

AB=CB

In Δ ABC

$12^2=\sqrt{AB^2+CB^2}$

$144=\sqrt{AB^2+AB^2}$

$AB=\frac{\sqrt{144}}{\sqrt{2}}cm$

$=\frac{12}{\sqrt{2}}cm$

Area of Δ ABC = $\frac{1}{2}\times\frac{12}{\sqrt{2}}\times\frac{12}{\sqrt{2}}=36$ sq. cm.

43. (c) Let radius of hemisphere = height of cylinder = r units

Volume of hemisphere / volume cylinder =1

$\frac{\frac{2}{3}\pi r^3}{\pi r_1^2 r}=1$

$\frac{r^2}{r_1^2}=\frac{3}{2}$

$r:r_1=\sqrt{3}:\sqrt{2}$

44. (c) Let radius of circle be x cm, sie of square be y cm and side of equilateral triangle be z cm.

ATQ, $2\pi x=4y=3z$

$x=\frac{4y}{2\pi}=\frac{2y}{\pi}\Rightarrow z=\frac{4y}{3}$

Area of circle C = $\pi x^2=\pi\times\frac{4}{\pi^2}y$

$=\frac{4}{\pi}y^2>y^2$

Area of square 'S' = y^2

Area of triangle 'T' = $\frac{\sqrt{3}}{4}z^2$

$\frac{\sqrt{3}}{4}\times\frac{4\times4}{3\times3}y^2=\frac{4}{3\sqrt{3}}y^2$

Or, $\frac{4}{3\sqrt{3}}<y^2$

So that T<S<C

45. (d) ATQ, $\pi\, m^2H=\frac{1}{3}\pi r^2h$

$h=\frac{1}{3}\frac{\pi r^2h}{\pi m^2}=\frac{hr^2}{3m^2}$

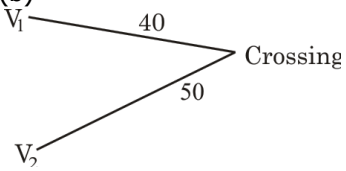
46. (c) required ratio = $2500\times\frac{40}{100}:3000\times\frac{45}{100}$

47. (a) Required average

$=\frac{2500+3000+2000+2250+1250+1000}{6}$

$=\frac{12000}{6}=2000$

48. (b)



Let the time taken be equal

$\frac{40}{V_1}=\frac{50}{V_2}$, then they will collide i.e., cars will rach at the same time

So that $\frac{V_1}{V_2}\neq\frac{40}{50}=\frac{4}{5}$

49. (d) Let milkman purchased x liter

ATQ, 50x+2000=60x-1500

10x=3500 litre; x=350 litres

50. (a)

ENGLISH LANGUAGE