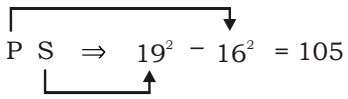
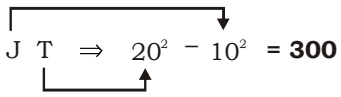
SSC MOCK TEST - 301 (SOLUTION)

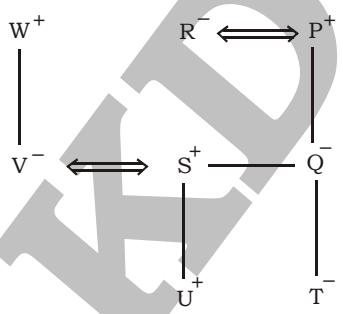
1. (B) As,



Similarly,

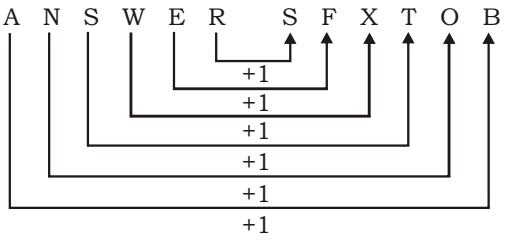


2. (C) A Chef is a person who cooks food, while a Choreographer is a person who teaches dance.
3. (D) (A) 9 × 8 × 7 = 504
   (B) 8 × 7 × 6 = 336
   (C) 7 × 6 × 5 = 210
   (D) 6 × 5 × 4 = 120 ≠ 240
4. (C) Except Ounce, others are currencies, while Ounce is a unit of weight.
5. (A) Required answer is 4.
6. (D) 400 20 2 0.4 **0.16**
   ÷20 ÷10 ÷5 ÷2.5
   ÷2 ÷2 ÷2
7. (B) +2 +2 +2
   L M 625 O P 961 R S 1369 **U** **V** **1849**
   12 + 13 = $(25)^2$ 15 + 16 = $(31)^2$ 18 + 19 = $(37)^2$ 21 + 22 = $(43)^2$
8. (C)

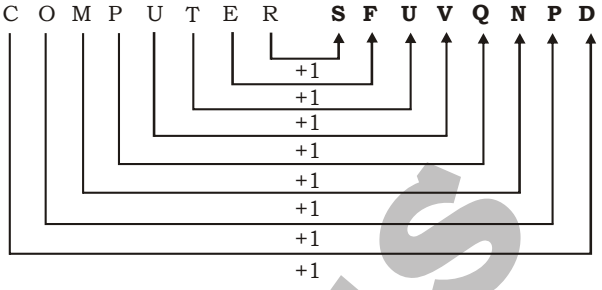


   Hence, T is grand-daughter of P.
9. (B) As,
   9 × 2 = 18 and 18 × 4 = 72
   Similarly,
   12 × 2 = 24 and 24 × 4 = 96

10. (C) As,



Similarly,



11. (A) k**k**lmm/l**l**mk**k**/mmk**l**l/kkl**m**m

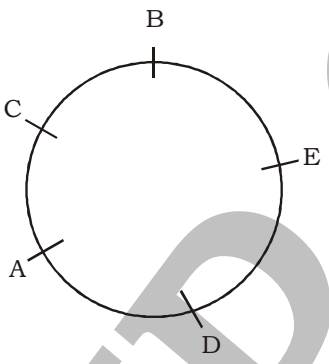
12. (D) In first column,
$10 \times 8 - 8^2 = 16$
In second column,
$18 \times 7 - 7^2 = 77$
In third column,
$29 \times 21 - 21^2 = 168$

13. (B) $8 + 7 \times 3 - 22 \div 11 = 3 \times 5 - 8 + 24 \div 3$
After Changing the signs,
$8 + 5 \times 3 - 22 \div 11 = 3 \times 7 - 8 + 24 \div 3$
$8 + 15 - 2 = 21 - 8 + 8$
$21 = 21$

14. (C)

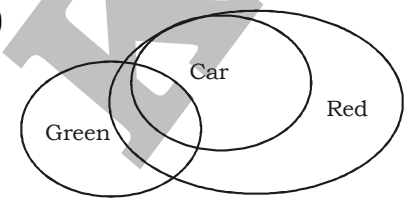
15. (D) 2. Application → 1. Scrutiny → 3. Interview → 4. Job offer → 5. Joining

16. (C)



Hence, A is sitting second to the left of E.

17. (A)



I. True II. True III. True
Hence, all the conclusions follow.

18. (D)

19. (B)

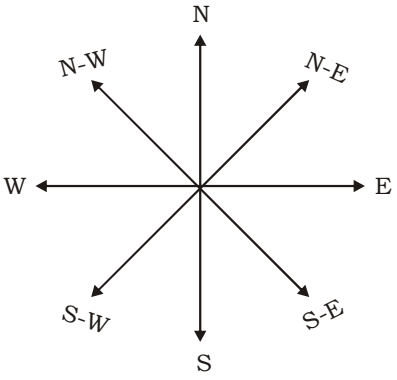
20. (A) Angle made by hour hand in $\frac{125}{12}$ hours = $\left(\frac{360}{12}\times\frac{125}{12}\right)^{\circ} = 312.5°$

Angle made by minute hand in 25 minutes = $\left(\frac{360}{60}\times 25\right)^{\circ} = 150°$

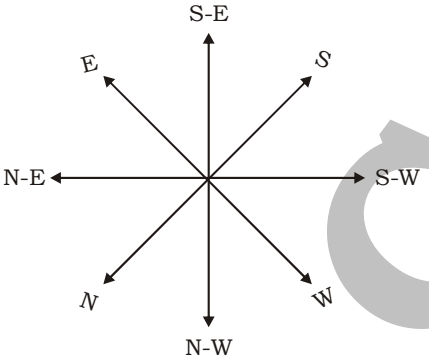
$\therefore$ Reflex angle = 360° – (312.5° – 150°) = 360° – 162.5° = 197.5°

21. (A) 22. (A) 23. (D) 24. (A)

25. (D)



Rotating above diagram such that South-East becomes North.



Then, West becomes South-East.

26. (D) Argon is an inert gas most commonly found in light bulbs. Argon improves bulb life by avoiding too rapid a degradation of the tungsten filaments.

28. (A) Muvendavelan was NOT a type of sacrifice performed by kings in ancient India to establish their position. Muvendavelan was a famous military officer of the Chola Empire, known for his generous donation to the numerous temples where he had been deployed by the king.

29. (B) The Class Gastropoda (in Phylum Mollusca) includes the groups pertaining to snails and slugs. The majority of gastropods have a single, usually spirally, coiled shell into which the body can be withdrawn.

30. (C) Mount Kyaiktiyo (Kyite Htee Yoe), famous for the huge golden rock perched at its summit, is one of the three most sacred religious sites in Myanmar, along with the Shwedagon Pagoda and the Mahamuni Temple. It is a wellknown Buddhist pilgrimage site in Mon State, Burma.

31. (A) Article 244 (1) of the Indian Constitution defines Scheduled Areas as the areas defined so by the President of India and are mentioned in the fifth schedule of the Constitution. In India, there are 10 states having scheduled areas. Article 244 deals with the Scheduled and Tribal Areas.

36. (C) Green Freight Corridor-2 is a coastal shipping service. Voyage was launched from Cochin port to Beypore and Azhikkal ports located in north Kerala.

39. (A) The International Kite Festival takes place in specially in Ahmedabad, Gujarat, India. The festival is called Uttarayan.

40. (D) Constitution (101st Amendment) Act, 2016 resulted in the insertion, deletion and amendment of certain Articles of the Constitution.

43. (D) That yellow powder is called pollen, and the stick that holds it is called a stamen. Flowers reproduce when bees or other pollinators carry pollen between flowers.

44. (D) Vitamin A Deficiency impaired dark adaptation of the eyes, which can lead to night blindness, is an early symptom of vitamin A deficiency.

45. (A) Hydrogen has three naturally occurring isotopes: 1H (protium), 2H (deuterium), and 3H (tritium).

46. (B) The pass located at the southern end of the Nilgiri Hills in south India is called the Palghat gap.

47. (D) The Jayakwadi Dam on the Godavari River, which feeds the project, has been at 86 per cent water storage since August last year, allowing the project to work at full steam.

50. (A) ICAI to launch mobile app for Foundation, Inter and Final course students. ICAI will launch mobile app named IAI-BOS for CA students. The mobile app will be launched on July 1, 2021.

51. (A) Water in new mixture = $\frac{5}{9}\times 63+\frac{4}{9}\times 63+15$ = 35 + 28 + 15 = 78 litres

Total quantity of new mixture = 63 + 63 + 15 = 141 litres

$\therefore$ Required % of water = $\left(\frac{78}{141}\times 100\right)\% = 55\frac{15}{47}\%$

52. (B) Let the breadth = x cm

Length of rectangle = 2x cm

Now, Area = L × B

228 = 2x × x

$x^2 = \frac{288}{2}$

$x = \sqrt{144}$

x = 12 cm

Diameter of circle = 7 × 12 = 84 cm

Radius = $\frac{84}{2}$ = 42 cm

$\therefore$ Area of circle = $\pi r^2 = \frac{22}{7}\times 42\times 42 = 5544\,cm^2$

53. (D) Pipe A fills the tank in 25 minutes

Pipe B fills the tank in 40 minutes

Pipe C fills the tank in 50 minutes

Let the capacity of the tank be 200 litres.

Pipe A fills the tank in 1 mintue = $\frac{200}{25}$ = 8 litres

Pipe B fills the tank in 1 mintue = $\frac{200}{40}$ = 5 litres

Pipe C fills the tank in 1 mintue = $\frac{200}{50}$ = 4 litres

Pipe (A + B + C) fill the tank in 4 minutes = 4 (8 + 5 + 4) = 68 litres
Pipe (B + C) fill the tank in next 6 minutes = 6 (5 + 4) = 54 litres
Remaining part of the tank = 200 – (68 + 54) = 200 – 122 = 78 litres

A leak empty the tank in 1 minute = $\frac{200}{80}$ = 2.5 litres

Now time taken by pipe C fill the tank taking into consideration the leak as well

= $\frac{78}{4-2.5}$ = 52 minutes

∴ Required total time to taken to fill the tank = 4 + 6 + 52 = 62 minutes

54. (C) Let the speed of boat in still water be u km/hr and speed of stream be v km/hr.

Upstream speed = u – v = $\frac{20}{40}\times 60$ = 30 km/hr ....(i)

Downstream speed = u + v = $\frac{30}{50}\times 60$ = 36 km/hr .....(ii)

Adding equation (i) and (ii), we get
2u = 66

$u = \frac{66}{2}$ = 33 km/hr

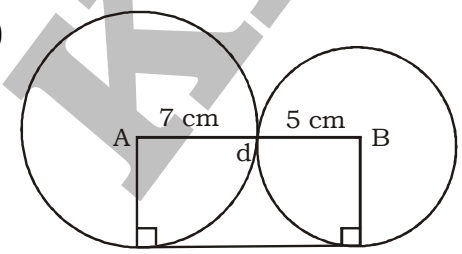
55. (B) $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=0$

$\frac{ab+bc+ca}{abc}=0$

ab + bc + ca = 0
We know, $a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$
$32 - 3 \times 8 = 4(a^2 + b^2 + c^2) - 0$
$8 = 4(a^2 + b^2 + c^2)$

∴ $a^2 + b^2 + c^2 = \frac{8}{4} = 2$

56. (A)



Length of direct common tangent $= \sqrt{d^2-(R_1-R_2)^2} = \sqrt{(R_1+R_2)^2-(R_1-R_2)^2}$

$= \sqrt{(7+5)^2-(7-5)^2} = \sqrt{144-4} = \sqrt{140} = 2\sqrt{35}$ cm

57. (C) Amount after two years = ₹ 5775

Amount after three years = ₹ 6930

From 2nd year to 3rd year, the amount ₹ 5775 becomes ₹ 6930 at R% compounded annually in 1 year.

Then,

$$6930 = 5775\left(1+\frac{R}{100}\right)^1$$

$$\frac{6930}{5775} = 1+\frac{R}{100}$$

$$\frac{6930}{5775} - 1 = \frac{R}{100}$$

$$\frac{6930-5775}{5775} = \frac{R}{100}$$

$$\frac{R}{100} = \frac{1155}{5775}$$

$$\frac{R}{100} = \frac{1}{5}$$

$$R = \frac{100}{5} = 20\%$$

58. (D) $\sqrt{25} \div 5 - 16 \div (-64 \div 8) + \sqrt{2601} \div \sqrt{(200+89)} + 2^8 \div 64$

$= \sqrt{25} \div 5 - 16 \div -8 + 51 \div 17 + 256 \div 64$

$= 5 \div 5 - 16 \div -8 + 3 + 4$

$= 1 + 2 + 3 + 4 = 10$

59. (B) Let the two numbers be x and y.

Now,

x : 13 : : 13 : y

$$\frac{x}{13} = \frac{13}{y}$$

$$x = \frac{169}{y} \quad \text{.....(i)}$$

And, x : y : : y : 832

$$\frac{x}{y} = \frac{y}{832}$$

$$\frac{169}{y^2} = \frac{y}{832}$$

$y^3 = 169 \times 832$

$y = \sqrt[3]{140608}$

$y = 52$

Put the value of y in equation (i),

$$x = \frac{169}{y} = \frac{169}{52} = \frac{13}{4}$$

$\therefore$ Required numbers are 52 and $\frac{13}{4}$.

60. (C) A's profit as remuneration in a year = 120 × 12 = ₹ 1440

Let the annual profit be ₹ x.

Then, ₹ (x – 1440) will be distributed between A and B as their share of profit.

Ratio of their profit = 40000 : 50000 = 4 : 5

A's share in the profit $= 1440 + (x - 1440) \times \frac{4}{9}$

$$3600 = 1440 + (x - 1440) \times \frac{4}{9}$$

$$3600 - 1440 = \frac{4x}{9} - 640$$

$$\frac{4x}{9} = 2160 + 640$$

$$\frac{4x}{9} = 2800$$

$$x = \frac{2800 \times 9}{4} = ₹\ 6300$$

$\therefore$ B's share in the profit = $\frac{5}{9} \times (6300 - 1440) = \frac{5}{9} \times 4860 = ₹\ 2700$

61. (D) Monthly pass cost = ₹ 3552

Total cost of ticket for 30 days = 160 × 30 = ₹ 4800

Saving = 4800 – 3552 = ₹ 1248

$\therefore$ Required saving% = $\left(\frac{1248}{4800} \times 100\right)\% = 26\%$

62. (A) Let the selling price of an article be ₹ 300.

So, x = ₹ 300

New selling price = $300 \times 66\frac{2}{3}\% = 300 \times \frac{200}{3 \times 100} = ₹\ 200$

Now, the cost price of an article $= \frac{200}{80} \times 100 = ₹\ 250$

When the article sold at ₹ 300, the profit = 300 – 250 = ₹ 50

$\therefore$ Profit = $\left(\frac{50}{250} \times 100\right)\% = 20\%$

63. (B) $\frac{\text{Speed}_P}{\text{Speed}_Q} = \sqrt{\frac{T_Q}{T_P}}$

$$\frac{S_P}{44} = \sqrt{\frac{9}{13\frac{4}{9}}}$$

$$\frac{S_P}{44} = \sqrt{\frac{9}{\frac{121}{9}}}$$

$$\frac{S_P}{44} = \sqrt{\frac{9\times 9}{121}}$$

$$\frac{S_P}{44} = \frac{9}{11}$$

$$S_P = \frac{44\times 9}{11} = 36 \text{ km/hr}$$

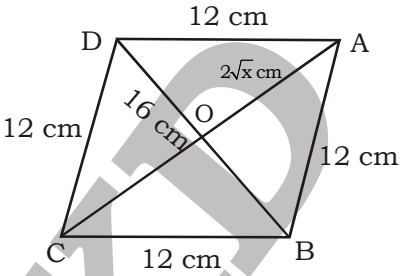
$\therefore$ Speed of P = 36 km/hr

64. (C) $\frac{4\cos(270°+\theta)\sin^3(90°-\theta) - 4\cos(360°+\theta)\cos^3(90°-\theta)}{\cos(90°+\theta)}$

$$= \frac{4\sin\theta\cos^3\theta - 4\cos\theta\sin^3\theta}{-\sin^4\theta} = \frac{4\cos\theta\sin\theta(\cos^2\theta - \sin^2\theta)}{2\sin 2\theta\cos 2\theta}$$

$$= -\frac{2\sin 2\theta\cos 2\theta}{2\sin 2\theta.\cos 2\theta} = -1$$

65. (D)



Side of rhombus = 12 cm

Diagonal BD = 16 cm

AC = $2\sqrt{x}$ cm

Since, diagonals of rhombus bisects each other at perpendicular.

So,

So, BO = $\frac{16}{2}$ = 8 cm and OC = $\frac{2\sqrt{x}}{2} = \sqrt{x}$ cm

In ΔBOC,

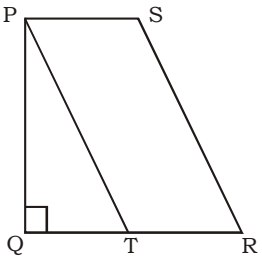
$CD^2 = BO^2 + OC^2$

$12^2 = 8^2 + \left(\sqrt{x}\right)^2$

$x^2 = 144 - 64 = 80$ cm

$\therefore \quad \sqrt{x+20} = \sqrt{80+20} = 10\,\text{cm}$

66. (B)



Given, QT = PQ

Area of ΔPQT = 128 cm^2

$\frac{1}{2} \times PQ \times QT = 128$

$PQ^2 = 256$

$PQ = \sqrt{256}$ = 16 cm

It is also given that,

PQ = 2PS

$PS = \frac{PQ}{2} = \frac{16}{2} = 8$ cm

Now, Area of trapezium PQRS

$= \frac{1}{2} \times PQ \times (PS + QR)$

$= \frac{1}{2} \times 16 \times (8 + 16 + 8) \qquad (\because PS = TR)$

$= \frac{1}{2} \times 16 \times 32 = 256\ cm^2$

67. (A) $\frac{\left[2\sin(45° + \theta).\sin(45° - \theta)\right]}{\cos 2\theta}$

$= \frac{[2\sin 45° \cos\theta + \cos 45° \sin\theta].[\sin 45° \cos\theta - \cos 45° \sin\theta]}{\cos 2\theta}$

$= \frac{2\left[\frac{1}{\sqrt{2}}(\cos\theta + \sin\theta)\frac{1}{\sqrt{2}}(\cos\theta - \sin\theta)\right]}{\cos^2\theta - \sin^2\theta}$

$= 2 \times \frac{1}{2} \times \frac{\cos^2\theta - \sin^2\theta}{\cos^2\theta - \sin^2\theta} = 2$

68. (C) Let the length of each train be x m.

Speed of first train = $\frac{x}{24}$ m/s

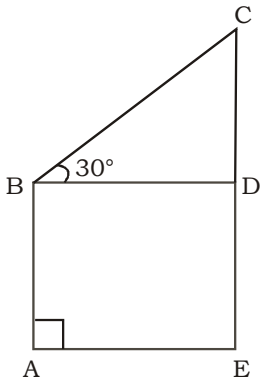
Speed of second train = $\frac{x}{16}$ m/s

ATQ,

$$\frac{x+x}{\frac{x}{24}+\frac{x}{16}} = \frac{2x}{\frac{2x+3x}{48}}$$

$$= \frac{2x}{5x} \times 48 = 19.2 \text{ seconds}$$

69. (B)



Let AB is the observer and CE is the tower.

AB = DE = 1.4 m

BD = AE = $25\sqrt{3}$ m

In ΔBCD,

$$\tan 30° = \frac{CD}{BD}$$

$$\frac{1}{\sqrt{3}} = \frac{CD}{25\sqrt{3}}$$

CD = 25 m

Now, CE = CD + DE = 25 + 1.4 = 26.4 m

$\therefore$ Height of tower = 26.4 m

70. (D) $x = \frac{2\sqrt{6}}{\sqrt{3}+\sqrt{2}} \times \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}-\sqrt{2}}$

$$x = 2\sqrt{18} - 2\sqrt{12} = 6\sqrt{2} - 4\sqrt{3} \quad \text{.....(i)}$$

$\therefore$ $\frac{x+\sqrt{2}}{x-\sqrt{2}} + \frac{x+\sqrt{3}}{x-\sqrt{3}}$

$$= \frac{6\sqrt{2}-4\sqrt{3}+\sqrt{2}}{6\sqrt{2}-4\sqrt{3}-\sqrt{2}} + \frac{6\sqrt{2}-4\sqrt{3}+\sqrt{3}}{6\sqrt{2}-4\sqrt{3}-\sqrt{3}} \quad \text{[From (i)]}$$

$$= \frac{7\sqrt{2}-4\sqrt{3}}{5\sqrt{2}-4\sqrt{3}} + \frac{6\sqrt{2}-3\sqrt{3}}{6\sqrt{2}-5\sqrt{3}}$$

$$= \frac{\left(84-35\sqrt{6}-24\sqrt{6}+60\right)+\left(60-15\sqrt{6}-24\sqrt{6}+36\right)}{60-25\sqrt{6}-24\sqrt{6}+60}$$

$$= \frac{240-98\sqrt{6}}{120-49\sqrt{6}} = \frac{2\left(120-49\sqrt{6}\right)}{120-49\sqrt{6}} = 2$$

71. (A) Profit on article D = ₹ 252

Cost price of article D = $\frac{252}{18}\times 100$ = ₹ 1400

Selling price = 1400 + 252 = ₹ 1652

∴ Marked price of an article = $\frac{1652}{70}\times 100$ = ₹ 2360

72. (C) Profit on article F = ₹ 264

Cost price of article F = $\frac{264}{12}\times 100$ = ₹ 2200

Cost price of article C = ₹ 2200

∴ Profit on article C = $2200\times\frac{10}{100}$ = ₹ 220

73. (D) Marked price of article A = ₹ 1530

Selling price of article A = $\frac{1530}{85}\times 100$ = ₹ 1800

∴ Cost price of article A = $\frac{1800}{120}\times 100$ = ₹ 1500

74. (C) Cost price of article E = $\frac{540}{30}\times 100$ = ₹ 1800

Now, total cost price of article E = 1800 + 540 = ₹ 2340

∴ Selling price of article E = $2340\times\frac{125}{100}$ = ₹ 2925

75. (A) Marked price of article B = $\frac{720}{24}\times 100$ = ₹ 3000

Selling price of article B = 3000 – 720 = ₹ 2280

Cost price of article B = $\frac{2280}{125}\times 100$ = ₹ 1824

Profit when no discount is allowed = 3000 – 1824 = ₹ 1176

∴ $\text{Profit}\% = \left(\frac{1176}{1824}\times 100\right)\% = 64.47\% \approx 64\%$

MEANINGS IN ALPHABETICAL ORDER

Bandit	a robber or outlaw belonging to a gang and typically operating in an isolated or lawless area	डाकू
Battalion	a large body of troops ready for battle, especially an infantry unit forming part of a brigade typically commanded by a lieutenant colonel	बटालियन
Contemporary	living or occurring at the same time	समकालीन
Dacoit	a member of a band of armed robbers	डकैत
Determination	firmness of purpose; resoluteness	दृढ़ निश्चय
Devout	having or showing deep religious feeling or commitment	धार्मिक
Instability	lack of stability; the state of being unstable	अस्थिरता
Motive	a reason for doing something, especially one that is hidden or not obvious	प्रेरणा
Perseverance	persistence in doing something despite difficulty or delay in achieving success	दृढ़ता
Persistence	firm or obstinate continuance in a course of action in spite of difficulty or opposition	हठ
Pirate	a person who attacks and robs ships at sea	समुद्री डाकू
Pleased	feeling or showing pleasure and satisfaction, especially at an event or a situation	प्रसन्न
Proficient	competent or skilled in doing or using something	प्रवीण
Profound	(of a state, quality, or emotion) very great or intense	गहन
Reluctant	unwilling and hesitant; disinclined	अनिच्छुक
Robber	a person who commits robbery	लूटेरा
Steady	firmly fixed, supported, or balanced; not shaking or moving	नियमित
Utility	the state of being useful, profitable, or beneficial	उपयोगिता

SSC MOCK TEST - 301 (ANSWER KEY)

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

76. (D) Next to- beside, by, near, close to .

77. (B) This is a conditional sentence – use 'were' instead of 'was' example- Sheetal always treats him as if he were a child.

Replace 'was' with 'were'.

90. (B) The correct spelling is 'Contemporary'.

91. (A) The correct spelling is 'Battalion'.