

SSC MOCK TEST - 312 (SOLUTION)

1. (C) As,

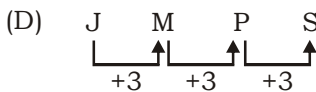
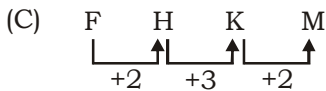
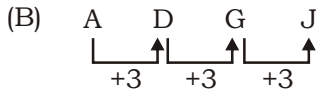
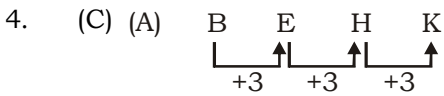
$$25 \Rightarrow \sqrt{25} = 5 \text{ and } (25)^2 = 5625$$

Similarly,

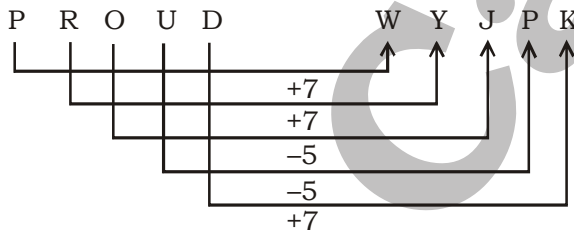
$$49 \Rightarrow \sqrt{49} = 7 \text{ and } (49)^2 = 72401$$

2. (A) In disease, we take medicines, similarly in hunger, we take food.

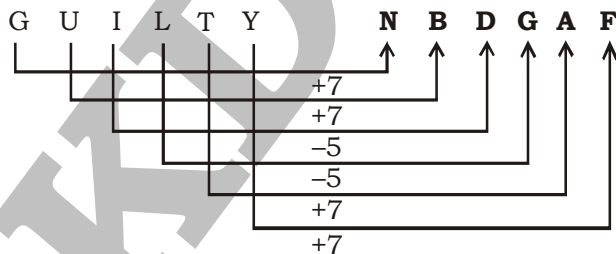
3. (B) Except Submarine, others are related to each other.



5. (B) As,



Similarly,



6. (C) $4 + 1^2 = 5$

$$5 + 2^3 = 13$$

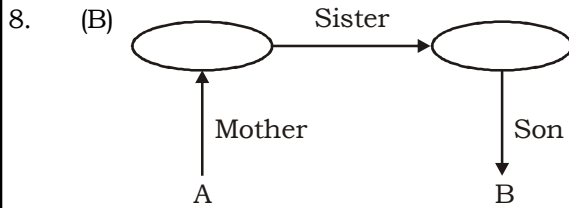
$$13 + 3^2 = 22$$

$$22 + 4^3 = 86$$

$$86 + 5^2 = 111$$

$$111 + 6^3 = \mathbf{327}$$

7. (D)
- | | | | | | | | | | | | |
|---|----|----|----|---|-----|---|----|-----|----|---|------|
| | +2 | | +2 | | +2 | | | | | | |
| | ↓ | | ↓ | | ↓ | | | | | | |
| A | D | 25 | F | I | 225 | K | N | 625 | P | S | 1225 |
| | ↑ | | ↑ | | ↑ | | ↑ | | ↑ | | |
| | +3 | | +3 | | +3 | | +3 | | +3 | | |
- $(1 + 4)^2 = 25$ $(6 + 9)^2 = 225$ $(11 + 14)^2 = 625$ $(16 + 19)^2 = 1225$



Hence, A is the cousin of B.

9. (C) As,
- $$13 + 6^2 = 49$$
- $$49 + 6^3 = 265$$
- Similarly,
- $$15 + 6^2 = 51$$
- $$51 + 6^3 = 267$$

10. (D) plsp/plsp/plsp/plsp

11. (B)

12. (B) **In first column,**

$$9 + 4 \Rightarrow 13^3 - 13^2 = 2028$$

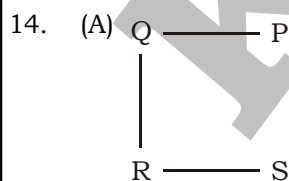
In second row,

$$7 + 8 \Rightarrow 15^3 - 15^2 = 3150$$

In third row,

$$6 + 3 \Rightarrow 9^3 - 9^2 = 648$$

13. (D) $646 \div 19 - 746 + 20 \times 34 = 100$
 After Changing the sign - and + to each other,
 $646 \div 19 + 746 - 20 \times 34 = 100$
 $34 + 746 - 680 = 100$
 $780 - 680 = 100$
 $100 = 100$

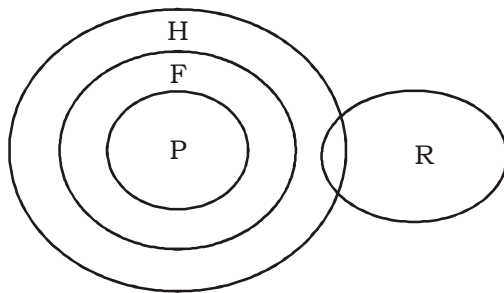


Hence, S is in the South-East of Q.

15. (A) 3. Illness → 2. Diagnosis → 1. Prescription → 5. Recovery → 4. Follow-up

16. (B) Total distance covered in 4 hours = 75 + 80 + 85 + 90 = 330 km

17. (A)



I. False II. True III. False

Hence, only conclusions II follows.

18. (A) 19. (D)

20. (B) As,

$$\text{CAT} \Rightarrow 3 + 1 + 20 = 24 \Rightarrow 42$$

And,

$$\text{DOG} \Rightarrow 4 + 15 + 7 = 26 \Rightarrow 62$$

Similarly,

$$\text{LION} \Rightarrow 12 + 9 + 15 + 14 = 50 \Rightarrow 05$$

21. (D) 15th August, 2021 = (2020 years + Period 1.1.2021 to 15.8.2021)

Odd days in 1600 years = 0

Odd days in 400 years = 0

20 years = (5 leap years + 15 ordinary years) = (5 × 2 + 15 × 1) = 25 = 4 odd days

Jan + Feb + March + April + May + June + July + August = (31 + 28 + 31 + 30 + 31 + 30 + 31 + 15) = 227 days

227 days = (32 weeks + 3 days) = 3 odd days

Total number of odd days = (0 + 0 + 7 + 3) = 7 = 0 odd days

∴ Required day is Sunday

22. (C) 23. (D) 24. (C) 25. (A)

28. (C) Assam elects 7 seats since 1956 (one more than 1952-1956). Members are indirectly elected by state legislators (elected politicians) of Assam. The number of the seven seats allocated to each party is proportional to the legislators' number at the time of nomination.

31. (C) India has been actively engaged in multilateral negotiations in the United Nations Framework Convention on Climate Change (UNFCCC) in a positive, constructive and forward looking manner based on the basic principles of the Convention and its subsequent decisions.

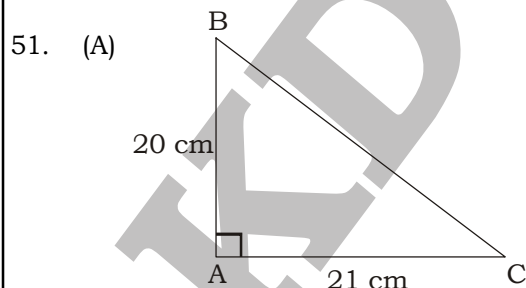
32. (B) Buxa Tiger Reserve is a tiger reserve in northern West Bengal, India, covering an area of 760 km².

33. (C) Sri Bhramaramba Mallikarjuna Temple, also known as Srisailam Temple is a historic temple dedicated to Shiva and Parvati. It is located in Srisailam, district Kurnool, in Andhra Pradesh State in India.

35. (C) "During the revolt, the revolutionaries appointed him as chief of 22nd Infantry Regiment that fought the famous battle of Chinhat in Ismailganj of Lucknow on June 30, 1857, against British forces led by Henry Lawrence.

36. (B) MyGov India, under the Ministry of Electronics and Information Technology (MeitY), has launched the Planetarium Innovation Challenge for Indian start-ups and tech entrepreneurs last week.

37. (C) The river flows for 1,180 km before entering into Pakistan. The Ravi is another important tributary of the Indus. It rises west of the Rohtang pass in the Kullu hills of Himachal Pradesh and flows through the Chamba valley of the state.
39. (D) There are several direct and indirect instruments that are used for implementing monetary policy. Repo Rate: The (fixed) interest rate at which the Reserve Bank provides overnight liquidity to banks against the collateral of government and other approved securities under the liquidity adjustment facility (LAF).
40. (A) The Shigmo or Shigmotsav festival is celebrated in the month of Phalguna (March) from the 9th moon day to full moon day as per the Hindu calendar. It is the biggest festival for the Hindus in Goa.
42. (B) Founded in 1336 in the wake of the rebellions against Tughluq rule in the Deccan, the Hindu Vijayanagar empire lasted for more than two centuries as the dominant power in south India.
43. (B) John Dalton, (born September 5 or 6, 1766, Eaglesfield, Cumberland, England-died July 27, 1844, Manchester), English meteorologist and chemist, a pioneer in the development of modern atomic theory.
44. (C) 'Horizon A' is the topmost zone, where organic materials have got incorporated with the mineral matter, nutrients and water, which are necessary for the growth of plants.
45. (D) First Chairperson of the Lokpal is Shri Justice Pinaki Chandra Ghose, who is a former Judge of Supreme Court of India and was a sitting member of National Human Rights Commission.
46. (A) Karst is a topography formed from the dissolution of soluble rocks such as limestone, dolomite, and gypsum.
47. (D) The SI unit for pressure is the pascal (Pa), equal to one newton per square metre. Pascal is a so-called coherent derived unit in the SI with a special name and symbol.
48. (A) The Corporate Centre is in Mumbai and 17 Local Head Offices and 101 Zonal Offices are located at important cities spread throughout the country. The Corporate Centre has several other establishments in and outside Mumbai, designated to cater to various functions.
49. (C) Deep sea plains are gently sloping areas of the ocean basins. These are the flattest and smoothest regions of the world. It is an underwater plain on the deep ocean floor, usually found at depths between 3,000 and 6,000m.
50. (C) The "Digital Sky" Platform is operated by Directorate General of Civil Aviation's (DCGA) in India. Recently, the Union Ministry of Civil Aviation has come out with a airspace map, exclusively for drone operations in India. This map can be accessed using the "Digital Sky" Platform.



In $\triangle ABC$,

$$AC = \sqrt{21^2 + 20^2}$$

$$= \sqrt{441 + 400} = \sqrt{841} = 29 \text{ cm}$$

$$\sin B = \frac{AC}{BC} = \frac{21}{29}$$

$$\cot C = \frac{AC}{AB} = \frac{21}{20}$$

$$\therefore \sin B - \cot C = \frac{21}{29} - \frac{21}{20}$$

$$= \frac{420 - 609}{580} = \frac{-189}{580}$$

52. (B) $x^2 + 1 - 2x = 0$

$$x^2 = 2x - 1$$

$$\therefore x^2(x^2 - 2) = (2x - 1)(2x - 1 + 2)$$

$$= (2x - 1)(2x + 1) = (2x)^2 - 1$$

$$= 4x^2 - 1$$

53. (A) $8 \div 2 \text{ of } 3\{56 \div 4 \text{ of } \{4 \times 3 - (9 - 11) \div (2 \div 4 \text{ of } 4)\}\}$

$$= 8 \div 6 [56 \div 4 \text{ of } \{12 - (9 - 11) \div (2 \div 16)\}]$$

$$= 8 \div 6 [56 \div 4 \text{ of } \{12 + 2 \div \frac{1}{8}\}]$$

$$= 8 \div 6 [56 \div 4 \text{ of } \{12 + 16\}]$$

$$= 8 \div 6 [56 \div 4 \text{ of } 28]$$

$$= 8 \div 6 \left(\frac{1}{2}\right)$$

$$= \frac{8}{6} \times \frac{1}{2} = \frac{2}{3}$$

54. (B) MP of an article = ₹ 560

$$\text{CP of man} = 560 \times \frac{85}{100} \times \frac{80}{100} = ₹ 380.80$$

$$\therefore \text{SP of man} = 380.80 \times \frac{125}{100} = ₹ 476$$

55. (D) CI - SI for 2 years = $P \left(\frac{R}{100}\right)^2$

$$478 = P \left(\frac{10}{100}\right)^2$$

$$478 = \frac{P}{100}$$

$$\therefore P = 478 \times 100 = ₹ 47800$$

56. (C) A can complete the work in 30 days.

$$\text{A can do the work in 1 day} = \frac{1}{30}$$

Let B can complete the work alone in x days.

$$\text{B's 1 day work} = \frac{1}{x}$$

ATQ,

$$\frac{10}{30} + \frac{(10-4)}{x} = 1$$

$$\frac{1}{3} + \frac{6}{x} = 1$$

$$\frac{6}{x} = 1 - \frac{1}{3}$$

$$\frac{6}{x} = \frac{2}{3}$$

$$x = 9 \text{ days}$$

∴ B alone complete the one-third of the work = $\frac{9}{3} = 3$ days

57. (A) Relative speed of train and man = $\frac{270}{9} = 30$ m/s

$$= 30 \times \frac{18}{5} = 108 \text{ km/hr}$$

$$\text{Speed of train} = 108 + 9 = 117 \text{ km/hr}$$

$$\therefore \text{Required time to cross a platform} = \frac{270 + 380}{117 \times \frac{5}{18}} = \frac{650}{32.5} \text{ seconds} = 20 \text{ seconds}$$

58. (B) Let income of Renu be ₹ 100.

$$\text{Saving} = 100 \times \frac{20}{100} = ₹ 20$$

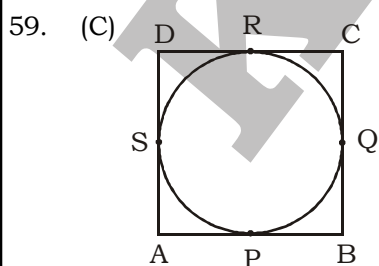
$$\text{Expenditure} = 100 - 20 = ₹ 80$$

$$\text{New income} = 100 \times \frac{132}{100} = ₹ 132$$

$$\text{New expenditure} = 80 \times \frac{125}{100} = 100$$

$$\text{New saving} = 132 - 100 = ₹ 32$$

$$\therefore \text{Required\%} = \left(\frac{32-20}{20} \times 100 \right) \% = 60\%$$



$$AP = AS \quad \dots\dots(i)$$

$$BP = QB \quad \dots\dots(ii)$$

$$DR = DS \quad \dots\text{(iii)}$$

$$CR = CQ \quad \dots\text{(iv)}$$

(Length of two tangents drawn from an external point of a circle are equal)

Adding equations (i), (ii), (iii) and (iv),

$$AP + BP + DR + CR = AS + BQ + DS + CQ$$

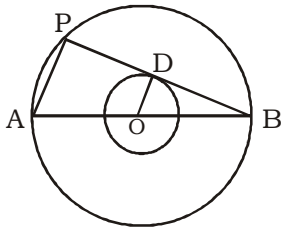
$$(AP + BP) + (DR + CR) = (BQ + CQ) + (DS + AS)$$

$$AB + CD = BC + AD$$

$$9 + 7 = 12 + AD$$

$$\therefore AD = 16 - 12 = 4 \text{ cm}$$

60. (B)



OD is radius of smaller circle and BD is the tangent to the smaller circle.

So,

$$OD \perp BD$$

$$\angle ODB = 90^\circ$$

In the bigger circle, P is a point in the semi circle of the bigger circle.

$$\text{Now, } \angle APB = 90^\circ$$

In $\triangle ABP$ and $\triangle OBD$,

$$\angle APB = \angle ODB = 90^\circ$$

$$\angle ABP = \angle OBD \quad (\text{Common})$$

$$\triangle ABP \sim \triangle OBD \quad (\text{By AA similarity})$$

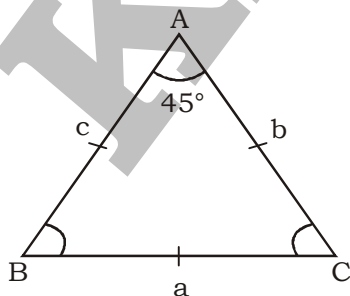
Now,

$$\frac{AP}{OD} = \frac{AB}{OB}$$

$$\frac{AP}{8} = \frac{30}{15}$$

$$\therefore AP = 8 \times 2 = 16 \text{ cm}$$

61. (C)



$$AB = AC = 10 \text{ cm}$$

$$\text{Area of } \triangle ABC = \frac{1}{2} bc \sin A$$

$$= \frac{1}{2} \times 10 \times 10 \times \sin 45^\circ$$

$$= 50 \times \frac{1}{\sqrt{2}} = 25\sqrt{2} \text{ cm}^2$$

62. (C) Interest for 1 year = $925 - 850 = ₹ 75$

If a sum becomes a_1 in t_1 years and a_2 in t_2 years, then rate of interest = $\frac{100(a_2 - a_1)}{(a_1 t_2 - a_2 t_1)} \%$

$$= \frac{100(925 - 850)}{850 \times 4 - 925 \times 3} \%$$

$$= \frac{7500}{625} \% = 12\%$$

$$\therefore \text{Principal} = \frac{75 \times 100}{1 \times 12} = ₹ 625$$

63. (D) Let the CP of goods be ₹ 100.

$$\text{MP of goods} = 100 \times \frac{125}{100} = ₹ 125$$

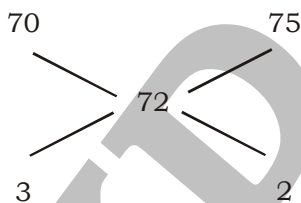
$$\text{SP of goods} = 100 \times \frac{20}{100} = ₹ 120$$

$$\therefore \text{Discount} \% = \left(\frac{125 - 120}{125} \times 100 \right) \%$$

64. (C) By alligation method,

Boys

Girls



Ratio of boys and girls = 3 : 2

$$\therefore \text{Required \% of girls} = \left(\frac{2}{5} \times 100 \right) \% = 40\%$$

65. (D) $\frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta} = 3$

$$\sin \theta + \cos \theta = 3 \sin \theta - 3 \cos \theta$$

$$4 \cos \theta = 2 \sin \theta$$

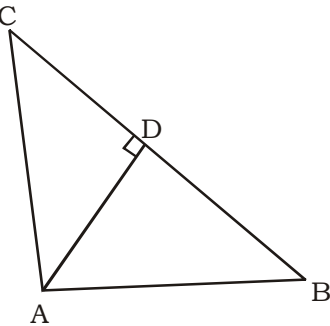
$$\frac{\sin \theta}{\cos \theta} = \frac{4}{2} = 2$$

$$\therefore \sin^4 \theta - \cos^4 \theta = (\sin^2 \theta + \cos^2 \theta)(\sin^2 \theta - \cos^2 \theta)$$

$$= \sin^2 \theta - \cos^2 \theta = \cos^2 \theta (\tan^2 \theta - 1)$$

$$= \frac{\tan^2 \theta - 1}{1 + \tan^2 \theta} = \frac{4 - 1}{1 + 4} = \frac{3}{5}$$

66. (C)



$$\angle BAC = 90^\circ, \angle ADC = 90^\circ$$

$$BC = 8 \text{ cm}, AC = 6 \text{ cm}$$

$$AB = \sqrt{8^2 - 6^2} = 2\sqrt{7} \text{ cm}$$

Now,

$$\text{Area of } \triangle ABC = \frac{1}{2} \times BC \times AD = \frac{1}{2} \times AB \times AC$$

$$8 \times AD = 2\sqrt{7} \times 6$$

$$AD = \frac{3\sqrt{7}}{2} \text{ cm}$$

Now,

$$CD = \sqrt{6^2 - \left(\frac{3\sqrt{7}}{2}\right)^2} = \sqrt{36 - \frac{63}{4}}$$

$$= \sqrt{\frac{144 - 63}{4}} = \sqrt{\frac{81}{4}} = \frac{9}{2} \text{ cm}$$

$$\therefore \frac{\text{Ar.}(\triangle ABC)}{\text{Ar.}(\triangle ACD)} = \frac{\frac{1}{2} \times AB \times AC}{\frac{1}{2} \times CD \times AD}$$

$$= \frac{2\sqrt{7} \times 6}{\frac{9}{2} \times \frac{3\sqrt{7}}{2}} = \frac{2\sqrt{7} \times 6 \times 4}{9 \times 3 \times \sqrt{7}} = 16 : 9$$

67. (A) $2x + \frac{2}{x} = 3$

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

On cubing both sides,

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

$$x^3 + \frac{1}{x^3} + 3 \times \frac{3}{2} = \frac{27}{8}$$

$$x^3 + \frac{1}{x^3} = \frac{27}{8} - \frac{9}{2}$$

$$x^3 + \frac{1}{x^3} = \frac{-9}{8}$$

$$\therefore x^3 + \frac{1}{x^3} + 2 = 2 - \frac{9}{8}$$

$$x^3 + \frac{1}{x^3} + 2 = \frac{7}{8}$$

68. (C) $14 + 6\sqrt{5} = 14 + 2 \times 3 \times \sqrt{5}$

$$= 9 + 5 + 2 \times 3 \times \sqrt{5}$$

$$= (3)^2 + (\sqrt{5})^2 + 2 \times 3 \times \sqrt{5}$$

$$= (3 + \sqrt{5})^2$$

$$\therefore \sqrt{14 + 6\sqrt{5}} = \sqrt{(3 + \sqrt{5})^2} = 3 + \sqrt{5}$$

69. (A) Let the LCM be L and HCF be H.

Then,

$$L = 4H$$

$$\text{Now, } H + 4H = 125$$

$$5H = 125$$

$$H = 25$$

$$L = 25 \times 4 = 100$$

$$\therefore \text{Second Number} = \frac{100 \times 25}{100} = 25$$

70. (C) $\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right)\left(1 - \frac{1}{5}\right) \dots \dots \left(1 - \frac{1}{n}\right)$

$$= \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \dots \dots \times \frac{n-1}{n} = \frac{2}{n}$$

71. (C) Required number of persons = $450 + 250 + 150 + 100 + 50 + 25 = 1025$
72. (B) Required number of persons = $250 + 150 = 400$
73. (C) Required ratio = $250 : 100 = 5 : 2$
74. (B) Number of maximum person in an age group 15-20 = 450
Total number of persons = $450 + 250 + 150 + 100 + 50 + 25 = 1025$
 \therefore Required ratio = $450 : 1025 = 18 : 41$
75. (D) Required percentage = $\left(\frac{50}{1025} \times 100\right)\% = 4.87\%$

MEANINGS IN ALPHABETICAL ORDER

Accomplish	achieve or complete successfully	समाप्त करना
Contaminate	having been made impure by exposure to or addition of a poisonous or polluting substance	दूषित
Dormitory	a large bedroom for a number of people in a school or institution	छात्रावास
Dreary	dull, bleak, and lifeless; depressing	सुनसान
Gradual	in a gradual way; slowly; by degrees	धीरे-धीरे
Luxurious	extremely comfortable, elegant, or enjoyable, especially in a way that involves great expense	शान-शौकत
Optimism	hopefulness and confidence about the future or the successful outcome of something	आशावाद
Perfectionist	a person who refuses to accept any standard short of perfection	पूर्णतावादी
Pessimist	tending to see the worst aspect of things or believe that the worst will happen	निराशावादी
Procure	the action of obtaining or procuring something	वसूली
Profuse	(especially of something offered or discharged) exuberantly plentiful; abundant	विपुल
Prompt	(of an event or fact) cause or bring about (an action or feeling)	तत्पर
Putrefy	(of a body or other organic matter) decay or rot and produce a fetid smell	भ्रष्टाचार हो जाना
Recluse	a person who lives a solitary life and tends to avoid other people	वैरागी
Tedious	too long, slow, or dull; tiresome or monotonous	थकाऊ
Veracity	conformity to facts; accuracy	सच्चाई
Versatility	ability to adapt or be adapted to many different functions or activities	बहुमुखी प्रतिभा
Virtuous	having or showing high moral standards	धार्मिक

SSC MOCK TEST - 312 (ANSWER KEY)

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

76. (C) Subject 'demand' is singular – use singular verb 'is' instead of 'are'
77. (D) We may use 'a + countable noun + of + uncountable noun.'
90. (B) The correct spelling of 'Pessymist' is 'Pessimist'.
91. (A) The correct spelling of 'Luxuriaus' is 'Luxurious'.