IBPS PO Preliminary Grand Test –IPP-180804

HINTS & SOLUTIONS

ANSWER KEY

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

HINTS & SOLUTIONS

1. (1) To make the sentence grammatically correct and contextually meaningful, replace the phrase given in bold with "tried hard to raise". It is to be noted that "hard" is used here as an adverb which is modifying the verb "tried" in the given sentence, hence, it should be placed next to 'tried'. Moreover, the sentence is in the past tense, therefore, the phrase "tried hard to raise" fits precisely in the given grammatical syntax of the sentence. Hence, option (1) becomes the most suitable answer choice.

2. (3) The sentence can be made grammatically correct and contextually meaningful by replacing the phrase given in bold with "was an unprecedented demand". It is to be noted that the phrase given in bold uses a plural verb [were] for a plural subject [unprecedented demands]; however, the article [an] is an indefinite article used for singular nouns. When using a plural noun, these 'a' and 'an' articles are unnecessary. Plural nouns can take either a definite article or no article at all. Moreover, the correct word is 'unprecedented' which is an adjective and it means never done or known before. Hence, option (3) becomes the most viable answer choice.

3. (4) To make the sentence grammatically correct and contextually meaningful replace, the phrase given in bold with "generated a lot of". 'A lot of' is a quantifier which means 'a large number of something'. It can be synonymously used for 'lots'. Moreover, option (1) becomes incorrect as it lacks an auxiliary verb for the precise grammatical syntax. Hence, the most viable answer choice is option (4).

4. (1) By replacing the phrase given in bold with "I knew my sister's situation", the sentence can be made grammatically correct and contextually meaningful. It is to be noted that the correct grammatical syntax of a sentence in past tense is "subject + past form of the verb". Since, only option (1) is satisfying this syntax it becomes the most suitable answer choice.

5. (3) The sentence can be made grammatically correct and contextually meaningful by replacing the phrase given in bold with "a stiff upper lip". "A stiff upper lip" means a quality of uncomplaining stoicism; While other given phrases means 'reading the lips' means to understand what someone is saying by watching the movements of their mouth; "passed lips" means to be spoken by someone; "paying lip service" means to consent in one's words while dissenting in one's heart; "losing the lip" means the practice, habit, or manner of speaking too frequently and/or without discretion, especially as might unintentionally lead to revealing private or sensitive information to others. Since, only option (3) provides the most appropriate contextual meaning to the sentence it becomes the most suitable answer choice.

6. (5) The given phrase in bold is grammatically correct and contextually meaningful and therefore, it does not require any correction or replacement. Hence, option (5) becomes the most suitable answer choice.

7. (3) To make the sentence grammatically correct and contextually meaningful, replace the phrase given in bold with "would not be right for me to pick". It is to be noted a pronoun is used as the object of the verb, it is always used in objective case. Ex. She wished me a happy new year. Since, option (3) is in appropriate grammatical syntax, it becomes the most suitable answer choice.

8. (2) The sentence would become grammatically correct and contextually meaningful if the phrase given in bold is replaced by the phrase "has been functioning and regulating". The present continuous tense is formed with the subject plus the present particle form (-ing) of the main verb and the present continuous tense of the verb to be: am, is, are. Moreover, both the verbs [function and regulate] are connected using the conjunction 'and', they both should be in similar forms. Since, only option (3) is satisfying this condition, it becomes the most viable answer choice.

9.(5) The given phrase in bold is grammatically correct and contextually meaningful and therefore, it does not require any correction or replacement. Hence, option (5) becomes the most suitable answer choice.

10. (5) The given phrase in bold is grammatically correct and contextually meaningful and therefore, it does not

require any correction or replacement. Hence, option (5) becomes the most suitable answer choice.

11. (5) The given part of the sentence is mentioning about the spending of RBI's foreign exchange reserves therefore, to complete the sentence logically, the phrase should describe about the reasons or causes for such an expenditure. Among the given expressions all three of them can perfectly complete the sentence making it grammatically correct and contextually meaningful. Hence, option (5) is the most suitable answer choice.

12. (5) The given part of the sentence is expressing that the government is taking the initiatives. Therefore, the correct expression that fills the blank should express the objectives for such initiatives. Among the given expressions all of them can complete the sentence logically and contextually as all the expressions are describing about the different motives for such initiatives by the government. Hence, option (5) becomes the most viable answer choice.

13. (2) The given sentence can be completed with expression (II) [the prosperity and progress of a nation] provided as "diversity" means 'the condition of having or being composed of differing elements' and the usage of the verb "guarantee" provides a hint that the sentence should be completed with the expression expressing the implication of diversity. Only expression (II) is satisfying this requirement. Hence, option (2) becomes the most suitable answer choice.

14. (4) Among the given expressions only expression (I) or (III) completes the sentence in the most appropriate grammatical and contextual structure. The sentence is describing about the impact of innovative education system. Since, expression (I) and (III) are clearly depicting the subjects on which the impact would appear, they would make the sentence grammatically correct and contextually meaningful. However, expression (II) fails to fit according to the context of the sentence. The given part of the sentence is describing about the role of technology whereas expression (II) is mentioning about the impact due to the understanding of old subject. Hence, option (4) becomes the most suitable answer choice.

15. (3) The given sentence can be logically completed using expression (III) as it makes the sentence grammatically correct and contextually meaningful. However, the other two expressions fail to adhere the theme of the sentence and thus option (3) becomes the most suitable answer choice.

16. (5) The question can be easily answered after going through the third paragraph. Refer the last few lines, "*Using this steady growth to boost opportunities as well as to increase energy security, India is forging diplomatic ties with its neighbours by entering into energy cooperation agreements. The consequence of these alliances is to restrict China's role in the South Asian energy market*." This suggests that all the three statements are the possible reasons for why India has strengthened its diplomatic ties with its neighboring countries. Hence option (5) is the correct choice in the context of the passage.

17. (4) It is to be noted that the question is quite tricky to answer; rather the question itself is contradicting to the content of the passage. According to the passage, India is yet to reach that golden mark of cent percent of electrification. This can be validated by referring the first paragraph of the passage, "*While it seems clear that not all households in these villages have power, it has been internationally acknowledged that India has faced an arduous struggle towards achieving 100 per cent electrification*." However, it cannot be ruled out that India has gained a notable improvement in this field. Hence option (4) becomes the most viable choice.

18. (1) To answer this question, one needs to understand the passage thoroughly. All three statements could be possible reasons, although it is important to read the question properly. It is explicitly mentioned that the reason should be in the context of the passage. This makes the last two statements incorrect as they are out of the context. However, the first statement could be derived from the fourth and the sixth paragraphs where China's successive diplomatic move with both Sri Lanka and Nepal is mentioned. Hence option (1) is the correct choice in the context of the passage.

19. (3) Read all the paragraphs given as options carefully before attempting the question. This will help in eliminating the paragraphs 5, 6 and 8. However, the rest two paragraphs 2 and 3 may create a confusion as both these paragraphs seem to generate the given inference. But there is a slight difference between the two. In the case of paragraph 2, India is praised more for its contribution towards sustainable development goals within Asia, while in the third paragraph, it is clearly mentioned that the IEA credited India with being a major driving force in global energy trends through its modern fuels and technologies. Thus, it becomes the obvious choice of selection. Hence option (3) is the correct choice.

20. (3) To solve such question, one needs to be precise with the statistical figures wherever mentioned in the passage. The first two statements can be easily vindicated after going through the sixth and the second paragraphs of the passage respectively. However, in the case of third statement, there is certain deviation from the actual figure mentioned in the passage. Refer the sentence from the fourth paragraph, "*The Indo-Japan collaboration follows successive Chinese investments in Sri Lanka, including the $1.4 billion Colombo Port City project and China's help in expanding the Hambantota port and the Mattala airport*." This clearly indicates that China invested more than $1.4 billion in aggregate in Sri Lanka as $1.4 billion is invested only for Colombo Port City project and alike. Thus, this makes the statement incorrect in the context of the passage. Hence option (3) is the correct choice.

21. (2) The importance of India-Mauritius relationship is given in the second last paragraph i.e. Paragraph 7 of the passage. Read the paragraph carefully to understand how the two nations would seek each other help to draw the mutual benefit. Refer, "*Mauritius is receiving support from India to build their infrastructure. India already supplies petroleum products to Mauritius. With its development as a petroleum hub, Mauritius can ensure its energy security …*". This makes the second and the third statements correct choices for the given question. However, the first statement is incorrect as in the context of the passage, it isn't Mauritius but Indonesia who will be benefitted in achieving self-

sufficiency in energy. To refer the statement, read the last paragraph. Hence option (2) is the correct choice in the context of the passage.

22. (4) To answer this question, one needs to go through the respective usage of words in the passage. Among the given options, the word "***forge***" indicates the nearest meaning "***establish***" in the context of the passage. The word "***forging***" means ***creating (something) strong, enduring, or successful***. Other words can be eliminated based on their usage and meanings. Hence option (4) is the correct choice.
Ensure means make certain that (something) will occur or be the case.
Reliance means dependence on or trust in someone or something.
Access means the means or opportunity to approach or enter a place.
Expand means become or make larger or more extensive.

23. (5) Let's find out the exact meaning of the word "***deepen***" as used in the passage. The word "***deepen***" means ***make or become deep or deeper***. Thus, among the three alternatives, all the three sentences provide the exact meaning of the word contextually. Hence option (5) is the correct choice.
Strengthen means make or become stronger.
Boost means help or encourage (something) to increase or improve.
Bolster means support or strengthen.

24. (1) To answer such questions, one needs to understand that the question demands both the synonym and the antonym of the given word respectively as a pair. The word "***arduous***" means ***involving or requiring strenuous effort; difficult and tiring***. Thus, among the given pairs and in the context of the passage, "***onerous***" is the most appropriate similar word to it and at the same time "***effortless***" is the most appropriate opposite word. The other pairs cannot be derived correctly in the context of the usage of the highlighted word in the passage. Hence option (1) is the correct choice.
Onerous means (of a task or responsibility) involving a great deal of effort, trouble, or difficulty.
Effortless means requiring no physical or mental exertion.
Harrowing means acutely distressing.
Vague means of uncertain, indefinite, or unclear character or meaning.
Excruciating means intensely painful.
Fanciful means over-imaginative and unrealistic

25. (1) The word "***cultivating***" as used in the passage means trying to improve or develop. Thus, among the given alternatives, both the words "***fostering***" and "***developing***" can be used as replacements to the given word. The word "***fostering***" means ***encourage the development of (something, especially something desirable)***. However, the word "***mulching***" cannot be used as replacement of the given word as the word means ***treating or covering with mulch***. Thus, it is out of the context. Hence option (1) is the correct choice.

26. (2) Option (2) is the correct choice for the given question.
Autonomy means freedom from external control or influence; independence. The latter part of the sentence indicates that human beings are independent in their choices, therefore, the use of autonomy is the correct choice. Affirms is the right choice for the second bold part as it means state emphatically or publicly. Other choices may indicate similar meanings but they are either grammatically incorrect (like believes should be replaced by believe) or the other option of the pair is incorrect. Only option (2) gives the perfect pair for the given sentence.
Affability means the quality like friendly, good-natured, or easy to talk to.
Anatomy means a study of the structure or internal workings of something.
Liability means the state of being legally responsible for something.
Supremacy means the state or condition of being superior to all others in authority, power, or status.

27. (3) Option (3) is the correct choice.
Preoccupied means (of a matter or subject) dominate or engross the mind of (someone) to the exclusion of other thoughts.
Directive means an official or authoritative instruction.
Pensive means engaged in, involving, or reflecting deep or serious thought.
Mired means cause to become stuck in mud.

28. (5) There is no error in the given statement.
Conduct means to carry out or organize.
Delegate means to entrust (a task or responsibility) to another person, typically one who is less senior than oneself.
Entrust means to assign the responsibility for doing something to (someone).
Adhere means to closely follow, observe, or represent.
Pejorative means expressing contempt or disapproval.

29. (2) Option (2) is the correct choice for the given question.
The sentence implies that 5G technology can be beneficial for India' growth but for that to happen we need improvement in the infrastructure. The two words resonate with the condition that makes the sentence meaningful.
Chariot means the two wheeled vehicle drawn by the horses but here it is used in the context of 5G technology taking India forward. **Disbursement** means the payment of money from a fund.

30. (2) Option (2) is the correct choice for the given question.
Sentence implies that Indian must take a leaf out of their neighbour's book in order to commit to the process of intensifying non-farm employment.
Cue means a signal for action.
Undertake means commit oneself to and begin (an enterprise or responsibility); take on.
Propel means drive or push something forwards.
Forgo means go without (something desirable).

31. (4)

I. $2x^2 + 9x + 9 = 0$
$2x^2 + 6x + 3x + 9 = 0$
$2x(x + 3) + 3(x+3)=0$
$(2x + 3)(x+3)= 0$
$x = \frac{-3}{2}, -3$
II. $2y^2 - 3y - 9 = 0$
$2y^2 - 6y + 3y - 9 = 0$
$2y(y - 3) + 3(y-3)= 0$
$(y - 3)(2y+3)= 0$
$y = \frac{-3}{2}, 3$
$\Rightarrow y \geq x$

32. (2)

I. $\sqrt{(x-8)(x-10)} = 2\sqrt{2}$
$(x - 8)(x - 10) = 8$
$x^2 - 8x - 10x + 80 = 8$
$x^2 - 18x + 72 = 0$
$x^2 - 6x - 12x + 72 = 0$
$x(x - 6) - 12(x - 6) = 0$
$(x - 12)(x - 6) = 0$
$x = 12, 6$
II. $y^2 - 36 = 0$
$y^2 = 36$
$y = \pm 6$
$\Rightarrow x \geq y$

33. (1)

I. $4x^2 - 41x + 105 = 0$
$4x^2 - 20x - 21x + 105 = 0$
$4x(x-5) - 21(x-5) = 0$
$(4x - 21)(x - 5) = 0$
$x = 5, \frac{21}{4}$
II. $3y^2 - 23y + 42 = 0$
$3y^2 - 9y - 14y + 42 = 0$
$3y(y - 3) - 14(y - 3) = 0$
$(3y - 14)(y - 3) = 0$
$y = \frac{14}{3}, 3$
$\Rightarrow x > y$

34. (3)

$x^2 + 3x - 18 = 0$
$x^2 + 6x - 3x - 18 = 0$
$x(x + 6) - 3(x + 6) = 0$
$(x - 3)(x + 6) = 0$
$x = 3, -6$
II. $y^2 - 10y + 24 = 0$
$y^2 - 4y - 6y + 24 = 0$
$y(y - 4) - 6(y - 4) = 0$
$(y-6)(y-4) = 0$
$y = 6, 4$
$\Rightarrow y > x$

35. (5)

$x^2 + 12x + 32 = 0$
$x^2 + 4x + 8x + 32 = 0$
$x(x + 4) + 8(x+4)= 0$
$(x + 8)(x+ 4) = 0$
$x = -8, -4$
II. $2y^2 + 25y + 68 = 0$
$2y^2 + 8y + 17y + 68 = 0$
$2y(y+ 4) + 17(y+ 4) = 0$
$(2y + 17)(y + 4) = 0$
$y = -4, -\frac{17}{2}$
$\Rightarrow$No relation can be established between x and y

36. (1)

(A+B) together can complete whole work in $= \frac{24\times6}{5} = \frac{144}{5}$ days
1 day work of (A+B) $= \frac{5}{144}$
(B+C) together can complete whole work in $= \frac{4\times20}{3} = \frac{80}{3}$ days
1 day work of (B+C) $= \frac{3}{80}$

ATQ-
A×27 days+B×28 days+C ×$2\frac{1}{2}$days=1 work
A×27 days+B×(27+1) days+C ×$(1+1\frac{1}{2})$days=1 work
27 days×(A+B)+1day×(B+C)+$1\frac{1}{2}$ $days$ ×C = 1 work
$27 \times \frac{5}{144} + 1 \times \frac{3}{80} + 1\frac{1}{2}C = 1$
$\frac{15}{16} + \frac{3}{80} + 1\frac{1}{2}C = 1$
$1\frac{1}{2}C = 1 - \frac{75+3}{80}$
$C = \frac{1}{40} \times \frac{2}{3}$
$C = \frac{1}{60}$
B alone $= \frac{3}{80} - \frac{1}{60}$
$= \frac{9-4}{240}$
$= \frac{5}{240}$
$= \frac{1}{48}$
B alone will complete task alone in 48 days

37. (4)

let Mr. Abhishek invested Rs. P on SI and Rs. P on CI
Simple Interest received for
Third year $= P \times \frac{15}{100}$
$= \text{Rs. } \frac{15P}{100}$
Compound Interest received for second year
$= \left(P + P \times \frac{20}{100}\right) \times \frac{20}{100}$
$= \text{Rs. } \frac{24P}{100}$
ATQ-
$\frac{24P}{100} - \frac{15P}{100} = 1575$
$\frac{24P-15P}{100} = 1575$
9P = 157500
$P = \frac{157500}{9} = 17500\ rs.$
Total sum invested by Mr. Abhishek = 2P=17500×2
= Rs. 35000

38. (4)

Lets Investment of Prabhat, Amit and Ankit
= P, (P + 1200) and (P + 2400)
Profit ratio of Prabhat, Amit and Ankit
= 8P : 10(P + 1200) : 6 (P + 2400)
= 8P : (10P + 12000) : (6P + 14400)
ATQ—
$\frac{8P}{(10P + 12000)} = \frac{27000}{36000}$
32P - 30P = 36000
P = 18000
Investment of Ankit = (18000 + 2400)
= 20400 Rs.

39. (2)

Let speed of boat in still water be x km/h
and speed of current be y km/hr.
Given,
$y = \frac{x}{3}$
x= 3y ...(i)
ATQ -
$\frac{96}{(3y + y)} + \frac{96}{(3y - y)} = 18$
$\frac{192 + 384}{8y} = 18$
$y = \frac{576}{8\times18} = 4$ km/hr
Time taken by boat to cover 96 km downstream $= \frac{96}{(4\times3+4)}$
$= \frac{96}{16} = 6$ hours
Let upstream speed of boat be increased by
s km/h to cover 96 km distance upstream in 6 hrs.
$\frac{96}{(4 \times 3 - 4) + s} = 6$
96 = 48+ 6s
6s = 48
s= 8 km/hr

40. (2) Let selling price of Article A, B and C be 3y, 4y and 5y respectively
And, profit percentage on these article
4x, 12x and 5x respectively
ATQ
$\frac{3y}{4y} = \frac{(100+4x)}{(100+12x)}$
36x – 16x = 400 – 300
x = 5
So, profit percentage on article A, B and C is 20%, 60%, 25% respectively
C.P of article C=Rs. 120
$\Rightarrow 5y = 120 + 120 \times \frac{1}{4}$
5y = 150
y= 30 Rs.
Selling price of Article A = 90 Rs.
Selling price of Article B = 120 Rs.
Overall profit
$= \frac{90}{6} \times 1 + \frac{120}{8} \times 3 + \frac{150}{5} \times 1$
= 15+ 45 + 30
= 90 Rs.

41. (3) 'W$_3$' type wheat produced by Ayush
$= 5500 \times \frac{(100-56)}{100} \times \frac{18}{110}$
$= 5500 \times \frac{44}{100} \times \frac{18}{110}$
= 396
'W$_3$' type wheat produced by Bhavya
$= 5500 \times \frac{(100-60)}{100} \times \frac{5}{20}$
$= 5500 \times \frac{40}{100} \times \frac{5}{20} = 550$
Required % $= \frac{396}{550} \times 100 = 72\%$
OR

$$\text{Required percentage} = \frac{\frac{(100-56)}{100} \times \frac{18}{110}}{\frac{(100-60)}{100} \times \frac{5}{20}} \times 100$$

$$= \frac{44 \times \frac{18}{100}}{40 \times \frac{5}{20}} \times 100$$

= 72%

42. (1) $$\text{Required ratio} = \frac{5500 \times \frac{(100-64)}{100} \times \frac{2}{6}}{5500 \times \frac{(100-45)}{100} \times \frac{6}{25}}$$

$$= \frac{5500 \times \frac{36}{100} \times \frac{1}{3}}{5500 \times \frac{55}{100} \times \frac{6}{25}}$$

$$= \frac{660}{726} = \frac{10}{11}$$

OR

$$\text{Required ratio} = \frac{\frac{(100-64)}{100} \times \frac{2}{6}}{\frac{(100-45)}{100} \times \frac{6}{25}} = 10 : 11$$

43. (5) 'W$_3$' type wheat produced by Arun
$= 5500 \times \frac{(100-35)}{100} \times \frac{9}{25}$
$= 5500 \times \frac{65}{100} \times \frac{9}{25}$
= 1287
Rice produced by Satish $= 5500 \times \frac{45}{100}$
= 2475
Required difference = 2475 – 1287 = 1188

44.(2) 'W$_1$' type wheat produced by Approv
$= 5500 \times \frac{(100-64)}{100} \times \frac{3}{6}$
$= 5500 \times \frac{36}{100} \times \frac{1}{2}$
= 990
'W$_1$' type wheat produced by Ayush
$= 5500 \times \frac{(100-56)}{100} \times \frac{77}{110}$
$= 5500 \times \frac{44}{100} \times \frac{7}{10}$
= 1694
Required average $= \frac{990+1694}{2} = \frac{2684}{2} = 1342$

45. (4) Total production of rice by all the five farmers
$= 5500 \times (35\% + 64\% + 45\% + 56\% + 60\%)$
$= 5500 \times \frac{260}{100}$
= 14300
Total production of wheat by all the five farmers
= 5 × 5500 – 14300 = 13200

46. (2) Let, total power banks sold by all six companies = 100x
Power banks sold by Philips & Sony together $= \frac{(16+12)}{100} \times 100x = 28x$
Power banks sold by Lenovo $= \frac{15}{100} \times 100x = 15x$
Required % $= \frac{28x-15x}{15x} \times 100 = \frac{1300}{15}\% = 86\frac{2}{3}\%$

47. (5) Let, total number of power banks sold by all six companies = 100x
ATQ,
$\frac{25}{100} \times \frac{75}{100} \times 100x = 4830$
$\Rightarrow$ 100x = 25760
Total power banks sold by Lenovo $= \frac{15}{100} \times 100x$
$= \frac{15}{100} \times 25760 = 3864$

48. (3) Let, total number of power banks sold by all six companies together = 100x
Average number of power banks sold by MI & Lenovo together
$= \frac{(20+15)}{200} \times 100x = 5600$
$\Rightarrow x = 320$
Average number of power banks sold by Lenovo, Syska and MI together
$= \frac{(15+20+25)}{300} \times 100x$
$= \frac{60}{3} \times x$
= 20x = 20 × 320
= 6400

49. (1) Let total number of power banks sold by all six companies = 100x
Total Power banks sold by Intex $= \frac{12}{100} \times 100x = 12x$
Total power bank sold by Rock $= \frac{125}{100} \times 12x = 15x$
ATQ,
$15x + \frac{25}{100} \times 100x = 14000$
40x = 14000
x = 350
Total number of power banks sold by Philips and Intex together $= \frac{(12+12)}{100} \times 100x$
= 24 × 350
= 8400

50. (3) Let, total number of power banks sold by six companies together = 100x
ATQ,
$\left(\frac{20+12}{100}\right) \times 100x - \left(\frac{16+12}{100}\right) \times 100x = 150$
= 4x = 150
$\Rightarrow$ 100x = 3750

51. (5) 8, 6, 10, 21, [50], 135
×0.5+2, ×1+4, ×1.5+6, ×2+8, ×2.5+10

52. (2) [18], 32, 49, 71, 100, 140
14, 17, 22, 29, 40
3, 5, 7, 11

53. (4) 3, 8, 24, 48, 120, 168
2^2-1, 3^2-1, 5^2-1, 7^2-1, 11^2-1, 13^2-1

54. (1) 6, 6, 9, 18, [45], 135
×1, ×1.5, ×2, ×2.5, ×3

55. (2) 15, 24, 49, 98, 179, [300]
9, 25, 49, 81, 121
3^2, 5^2, 7^2, 9^2, 11^2

56. (2) Let, Height of cone(h) be 7x

$\Rightarrow$ Radius of cone(R) = $\frac{300}{100} \times 7x = 21x$

$\Rightarrow$ Radius of sphere(r) = $\frac{21x}{2} \times 1 = 10.5x$

ATQ,

Volume of sphere – Volume of cone = 1617

$\frac{4}{3}\pi r^3 - \frac{\pi R^2 h}{3} = 1617$

$\frac{4}{3} \times \frac{22}{7} \times (10.5x)^3 - \frac{22}{7} \times \frac{(21x)^2 \times 7x}{3} = 1617$

$4851x^3 - 3234x^3 = 1617$

$1617\ x^3 = 1617$

$\Rightarrow x = 1$

Height of cone = 7×1 = 7 cm

57. (1) C.I. earned by Neeraj = $8000 \times \left[\left(1 + \frac{20}{100}\right)^2 - 1\right]$

$= 8000 \times \left[\frac{36}{25} - 1\right]$

$= 8000 \times \frac{11}{25} = 3520$

Total amount invested for four years in SI scheme

= 8000 + 3520 = 11520

S.I. eared = $\frac{11520 \times 15 \times 4}{100} = 6912$

Total interest earned by Neeraj = 3520 + 6912 = 10,432

58. (1) Let the original number be (10x + y)

ATQ

$(10x+y) \times \frac{37.5}{100} = 10y + x$

$\Rightarrow (10x + y)\ 3 = 8\ (10y + x)$

$\Rightarrow 30\ x + 3y = 80y + 8x$

$22x = 77y$

$\frac{x}{y} = \frac{7}{2}$

Let x = 7a and y = 2a

When a = 1, number is 72 but when a = 2 and so on the number is not two digit.

So, original number should be equal to "72"

59. (4) Let, Total number of boys in the class = 4x

$\Rightarrow$ Then, Total number of girls in the class = $4x \times \frac{75}{100} = 3x$.

ATQ,

$4x \times \frac{10}{100} + 3x \times \frac{20}{100} = 80$

0.4x + 0.6x = 80

x = 80

Total number of students in the class initially = $(4 + 3) \times 80 = 560$

60. (4) Ratio of efficiency of A and B=2:3

Let time taken by A and B alone to fill cistern individually be 3x hours and 2x hours respectively.

ATQ,

$\frac{1}{3x} + \frac{1}{2x} = \frac{1}{18}$

$\Rightarrow x = 15$

A alone will fill cistern in $15 \times 3 = 45$ hours

B alone will fill cistern in $15 \times 2 = 30$ hours

A	B	
45	30	← Time taken
2	3	← Efficiency
90l		← Total capacity

Now, A alone is opened for first 3 hrs and then B alone is opened for next 1 hr till the whole cistern get filled .

So,cistern filled in 4 hrs=3×2+3=9 L

9L cistern is filled in 4 hrs

$\Rightarrow 90\ L\ cistern\ will\ be\ filled\ in = 4 \times 10 = 40\ hrs$

61. (4) $38 \times 15 + \sqrt[3]{216} = \frac{?}{100} \times 400 + (18)^2$

$570 + 6 = 4 \times ? + 324$

$576 - 324 = 4 \times ?$

$? = \frac{252}{4}$

$? = 63$

62. (5) $\frac{573+?}{16} + \frac{38 \times 450}{100} - (11)^2 = (10)^2$

$\frac{573+?}{16} + 171 - 121 = 100$

$573 + ? = 50 \times 16$

$? = 800 - 573$

$? = 227$

63. (1) $\frac{48}{100} \times ? + \sqrt{2304} = 18 \times 15 + \frac{25}{100} \times 360$

$\frac{48 \times ?}{100} + 48 = 270 + 90$

$\frac{48 \times ?}{100} = 312$

$? = \frac{312 \times 100}{48}$

$? = 650$

64. (5) $\frac{\sqrt[3]{6859} \times \sqrt[3]{4096}}{\sqrt{64}} = (?)^2 + \sqrt{4}$

$\frac{19 \times 16}{8} = (?)^2 + 2$

$38 - 2 = (?)^2$

$(?)^2 = 36$

$? = 6$

65. (2) $4721 + 549 - \frac{28}{100} \times ? = 1265 \times 4$

$5270 - 5060 = \frac{28}{100} \times ?$

$? = \frac{210 \times 100}{28}$

$? = 750$

66. (2) (I) N>O(True) (II) L=W(False)

67. (1) (I) C≥L(False) (II) M<L(True)

68. (4)

O R G A N I Z A T I O N

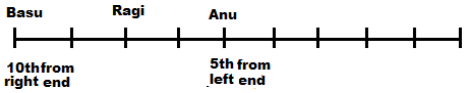
69. (5)

+2	-1	+2	-1	+2	-1	+2	-1	+2	-1
C	O	N	V	E	N	T	S		
E	N	P	U	G	M	V	R		
							S	C	H
							U	B	J

+2	-1	+2	-1	+2	-1	+2	-1	+2	-1
H	O	O	L						
N	Q	K							

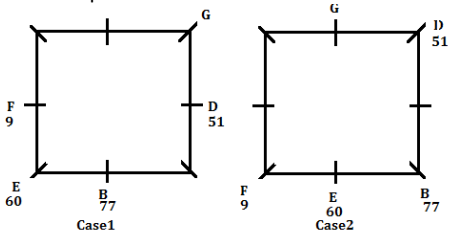
+2	-1	+2	-1	+2	-1	+2	-1	+2	-1
W	O	O	D	L	E	N	D		
Y	N	Q	C	N	D	P	C		

70. (2) Since not more than 11 persons are sitting in the row, this is the case of overlapping, the arrangement will be as follows:



Since Basu is 10th from right end and Ragi is 2nd to the right of Basu. Therefore, he is 8th from the right end.

71-75. B is immediate right to E and 3rd left to G. Two persons sit between E and D, who faces F. The number of pens D has is equal to the difference of pens E and F have. F has 9 pens which is 3/20th of the number of pens E has, So, E has 60 pens and D has 51 pens. B has 17 more pens than E. So, B has 77 pens.



A is not neighbor of F and does not sits at the middle of the sides. So, A sits immediate right to B in case1 and immediate right to G in case 2.

G has 15 more pens than B, So G has 92 pens. The number of pens A has is a multiple of 7 but less than 28. A has half the number of pens which H has. C has 3 pens more than H.

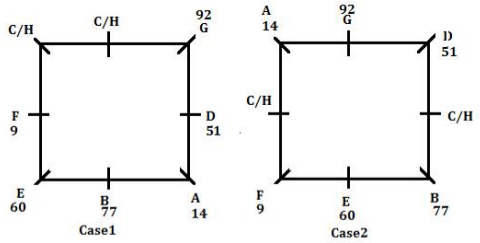
So there are three possibility:

1) A-7 H-14 C-17

2) A-14 H-28 C-31

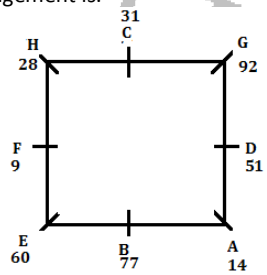
3) A-21 H-42 C-45

The difference of the number of pens between A and C is an odd number. From this condition, possibility 1 and 3 get eliminated.



But since no two persons having even number of pens can sit together ,therefore case2 gets eliminated(A and G both have even number of pens).

The final arrangement is:



71. (5) 72. (1)

73. (4) 74. (5) 75. (3)

76-80. F likes MP and studies in ALLEN. C studies in FITJEE and likes chemistry. The one who likes ED studies in the same institute with only one other person who likes MP, from this we get that only two students study in ALLEN. None of the student from AKASH likes physics. D likes physics, since he cannot be in ALLEN and AKASH, So D is in FITJEE.

H and G study in same institute. Since not more than three students can study in an institute therefore, H and G study in AKASH.

Student	Institute	Subject
A		
B		
C	FITJEE	Chemistry
D	FITJEE	Physics
E		
F	ALLEN	MP
G	AKASH	
H	AKASH	

The one who likes ED studies in the same institute with only one other person who likes MP. A does not study in same institute with H and C, So he studies in ALLEN with only F and likes ED. H and E do not like biology. G does not like biology and mechanics. The one who likes biology studies in AKASH, from this it is clear that B studies in AKASH and likes biology and E studies in FITJEE. None of the student from AKASH likes FM, So E likes FM. The final arrangement is as follows:

Student	Institute	Subject
A	ALLEN	ED
B	AKASH	Biology
C	FITJEE	Chemistry
D	FITJEE	Physics
E	FITJEE	FM
F	ALLEN	MP
G	AKASH	Maths
H	AKASH	Mechanics

76. (2) 77. (2)

78. (4) 79. (2) 80. (1)

81-85. G lives immediately above the one who belongs to school N and lives on an even numbered floor but not on the top floor. There are two floors between the one who belongs to school N and the one who belongs to school T, who does not live on top floor of the building.

	Case 1		Case 2		Case 3	
Floor	Teachers	Schools	Teachers	Schools	Teachers	Schools
8						
7						
6	G			T		
5		N				
4			G			T
3				N		
2		T			G	
1						N

More than three teachers live between E who belongs to school Q, and the one who belongs to school T. So, case 3 will be eliminated and in case 1 there will be two more possible cases:

	Case 1a		Case 1b		Case 2	
Floor	Teachers	Schools	Teachers	Schools	Teachers	Schools
8	E	Q				
7			E	Q		
6	G		G			T
5		N		N		
4					G	
3						N
2		T		T		
1					E	Q

The one who belongs to school S lives immediately below E. So, case 2 will be eliminated.

	Case 1a		Case 1b	
Floor	Teachers	Schools	Teachers	Schools
8	E	Q		
7		S	E	Q
6	G		G	S
5		N		N
4				
3				
2		T		T
1				

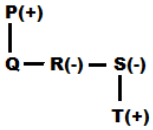
There are two floors between E and the one who belongs to school R. So, case 1a is eliminated. Now proceeding further with case1b. A belongs to school M and does not live on an odd numbered floor, Only place left for A is on 8th floor. There are three floors between D and B and C belongs to school O and lives on one of the floors above D, So B lives above D on 5th floor. H does not belong to school R. The final arrangement is:

Floor	Teachers	Schools
8	A	M
7	E	Q
6	G	S
5	B	N
4	F	R
3	C	O
2	H	T
1	D	P

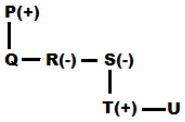
81. (3) 82. (4)

83. (1) 84. (2) 85. (5)

86. (5)



87. (2)



88. (3)

For I- From the venn diagram, we see, some part of rupees is in coins and no notes are coins. Therefore, we can conclude that some rupees are not notes.

For II- From the venn diagram, we see, all coins are mint and no notes are coins. Therefore, we can conclude that some mint are not notes.

For III- Since there is no direct relation between the elements cash and rupees, therefore we cannot conclude that no cash are rupees.

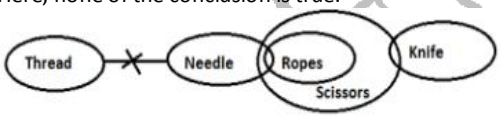
89. (2)

For I- From the venn diagram, we see, some part of banana is in guava and no guava are carrot. Therefore, we can conclude that at least some banana are not carrot.

For II- Since there is no direct relation between the elements mangoes and carrot, therefore we cannot conclude that at least some mangoes are not carrot.

For III- From the venn diagram, we see, all oranges are guava and no guava are carrot. Therefore, we can conclude that at least some oranges are not carrot.

90. (5) Here, none of the conclusion is true.



For I- From the venn diagram, we see, some part of needles is in scissors. Therefore, we cannot conclude that at least some needles are not scissors.

For II- Since there is no direct relation between the elements knife and thread, therefore we cannot conclude that some knife are not thread.

For III- Since there is no direct relation between the elements ropes and thread, therefore we cannot conclude that no thread is ropes.

91-94. S goes on 10th of the month which is having 31 days. V goes on the day immediately before Z. Two people are going between S and Z. T goes on 5th of the month which is having 31 days. Three people are going between T and Y. We get two possibilities:

	CASE 1		CASE 2	
MONTH	5th	10th	5th	10th
January	T	V	Y	V
April	Z		Z	
July	Y	S	T	S
November				

X goes immediately before Y, From this condition Case2 gets eliminated. Continuing with Case1, Not more than two persons are going between X and W. The final arrangement is:

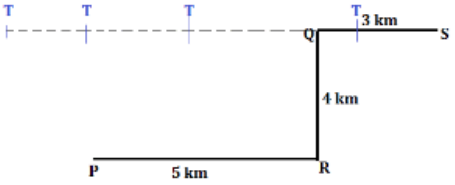
Month	5th	10th
January	T	V
April	Z	X
July	Y	S
November	W	U

91. (1) 92. (5)

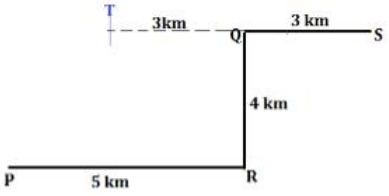
93. (1) 94. (4)

95. (3)

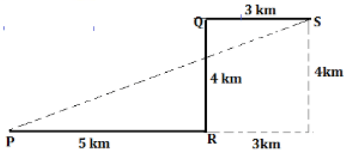
96-97. As Point T is in west of point S and the distance between them is not given so there can be many positions for point T as shown in the figure.



96. (3)

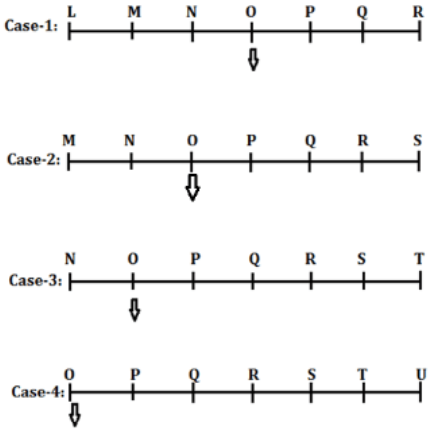


97. (3)

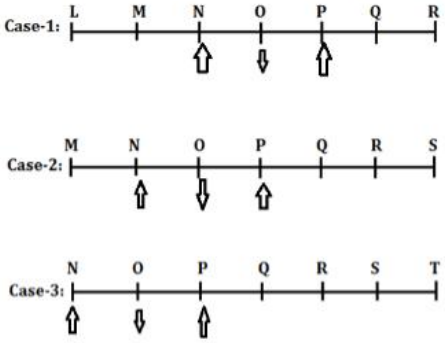


Distance between point P and S= $\sqrt{8^2 + 4^2} = \sqrt{80}$ km

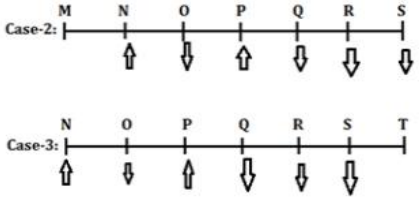
98-100. Seven persons are sitting as per alphabetical order from west to east. R sits third to the left of O. As per the given condition we know that all the persons are sitting according to the alphabetical order so we have four possibilities-------



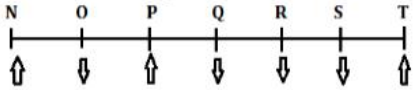
Both the immediate neighbours of O faces same direction to each other but opposite direction of O. So, from this case-4 will be eliminated. And it is clear that both immediate neighbours of O face north direction.



The person who is second to the right of P is facing opposite direction to P. So, it is clear that R is facing south direction. Both the immediate neighbours of R is facing same direction as R, Since in case1 there is only one immediate neighbor of R hence Case-1 gets eliminated. Continuing with case2 and case 3 both Q and S are facing south direction



The persons sitting at the ends faces same direction as P. From this Case-2 gets eliminated. So, the final arrangement is---------



98. (3) 99. (3) 100. (2)