Directions (1-8): Read the following passage and answer the questions given below. **Some words are highlighted to help you answer some of the questions**.

Cybersecurity is the practice of being protected against the criminal or unauthorized use of electronic data, or the measures taken to achieve this. At least, that's what the dictionary says. Over the years the term cybersecurity has been thrown around to the point where it is almost synonymous with terms like IT security or information security. It's kind of like saying every square is a rectangle, but not every rectangle is a square.

Every square is a rectangle because a square is a quadrilateral with all four angles being right angles. Similarly, cybersecurity is a part of the IT security umbrella, along with its counterparts, physical security and information security. But not every rectangle is a square, since the criteria to qualify as a square means all sides must be the same length. The point is, not all IT security measures qualify as cybersecurity, as cybersecurity has its own distinct assets to protect.

CompTIA's Chief Technology Evangelist, James Stanger says it best when he defines cybersecurity as "focusing on protecting electronic assets – including internet, WAN and LAN resources – used to store and transmit that information." Of course, the threat to these electronic assets are hackers who have **malicious** intent to steal proprietary data and information via data breaches. Thus, it would seem the fully realised definition should include an evolving set of cybersecurity tools designed to protect confidential data from unauthorized access. To do so, it's necessary to consider how people, processes and technology all play equally important roles in keeping information safe.

One of the many advantages to living in a world where every device is _____ is convenience. It's incredibly easy to conduct work, manage your social calendar, shop and make appointments from your smartphone or device. That's why it's become second nature to many of us.

But, of course, the **convenience** of connected data also means threats from bad actors can do a lot of damage. Cybersecurity initiatives are essential to protecting our data and thus, our way of life.

Q1. Which of the following statements is inferred from the passage?
(a) People, processes and technology all play very important roles in keeping information safe.
(b) Cyber-attacks can have various objectives like financial gain, disruption and revenge and cyberwarfare.
(c) Every square is a rectangle but every rectangle is not a square.
(d) Brutal terrorist attacks all take place due to lack of cyber security.
(e) None of these.

Q2. Choose the most appropriate antonym of the word '**MALICIOUS**', as highlighted in the given passage.
(a) malignant
(b) decent
(c) mischievous
(d) nasty
(e) None of these

Q3. Choose the most appropriate word from the following options to fill in the blank in the given passage.
(a) worsening
(b) earnest
(c) reluctant
(d) connected
(e) esurient

Q4. Choose the most appropriate synonym of the word 'CONVENIENCE', as highlighted in the given passage.
(a) annihilation
(b) usefulness
(c) hindrance
(d) accessory
(e) All of these

Q5. What are the threats to the electronic assets mentioned in the passage?
(a) Exploitation of weakness of and breaches in data security by hackers
(b) Governments that try to incept data transmissions for the purposes of spying
(c) Inter-governmental policies putting up restrictions on means of data security
(d) Knowledge of mechanisms of cybersecurity widely available to the public
(e) All of these

Q6. Which of the following most resembles the definition of cybersecurity according to the author?
(a) Cybersecurity is defined as the maintenance of internet resources in order of sustenance of security measures.
(b) Cybersecurity can be defined as the measures taken by a particular service to strengthen the security on the service for the protection of data.
(c) Cybersecurity incorporates any measures taken towards securing electronic assets responsible for storage or transmission of data.
(d) Cybersecurity involves the privacy settings chosen by the user on an electronic platform regarding the sharing of private data.
(e) None of these

Q7. Which of the following statements does the passage mention to be true?
(a) Cybersecurity initiatives are non-essential to overall structure of society and thus, can be neglected in that regard only.
(b) The full measure of cybersecurity can only be realised by the evolution of cybersecurity tools designed to protect confidential data from unauthorized access.
(c) Both (a) and (b)
(d) It's incredibly difficult to conduct work, manage your social calendar, shop and make appointments from your smartphone or device
(e) None of these

Q8. Which of the given statements cannot be justified from the information in the passage?
(a) Malware is a software used to disrupt computer operation, gather sensitive information, or gain access to private computer systems.
(b) Both a) and c)
(c) It is said that future wars will not be like traditional wars fought on land and air but will take the form of cyber warfare.
(d) Cybersecurity is often confused with IT security and information security due to lack of awareness.
(e) None of these

Directions (9-14): In the following questions, a grammatically correct and meaningful sentence is given which is divided into four parts namely (A),(B),(C) and (D) You have to arrange the four parts to make a contextually and grammatically meaningful sentence. If no such rearrangement is possible mark (E) as your answer i.e. 'No rearrangement possible.

Q9. to position itself as a major (A)/ the country has an opportunity (B)/ tourism destination during (C)/ India's presidency of the G20 (D).
(a) DBAC
(b) BACD
(c) CDAB
(d) ADCB
(e) No rearrangement possible

Q10. demand a cessation of hostilities (A)/ with Russia, was the only country to (B)/ India, with its special historic bonds (C)/ and want diplomacy and democracy (D).
(a) DBAC
(b) BCAD
(c) CBAD
(d) ADCB
(e) No rearrangement possible

Q11. both India and South Africa (A)/ the final dress rehearsal (B)/ to put in their best efforts in (C)/ would be particularly keen (D).
(a) DBAC
(b) BCAD
(c) CDAB
(d) ADCB
(e) No rearrangement possible

Q12. the growing food insecurity (A)/ crisis in the Asia Pacific (B)/ the Asian Development Bank is (C)/ allocating 14 $ billion to fight (D).
(a) DBAC
(b) BCAD
(c) CDAB
(d) ADCB
(e) No rearrangement possible

Q13. camera to observe the collision (A)/high-resolution DRACO (B)/ the DART craft carried a (C)/ and its consequences (D).
(a) CDAB
(b) BCAD
(c) CBAD
(d) ADCB
(e) No rearrangement possible

Q14. investments, and innovations (A)/ gaining prominence globally and (B)/ satellite communication has been (C)/ is seeing a lot of interest, (D)
(a) DCBA
(b) ADCB
(c) CBDA
(d)BCAD
(e)ABCD

Directions (15-18): In the following questions, a sentence has been given and been divided into five parts. One of the parts is highlighted to show that it is the grammatically correct part of the sentence. Choose from the other parts the one that contains the error, or choose "No error" if no errors exist.

Q15. If an invention claimed in (A) / a patent can be (B) / shown to exist or (C) / **been described previously, it** / invalidates the patent. (D) / No error (E)
(a) A
(b) B
(c) C
(d) D
(e) E

Q16. The firm stated that it (A) / maintained a strong balance sheet (B) / due to rigorous (C) / **cash management and a robust** / implementation of internal policies. (D) / No error (E)
(a) A
(b) B
(c) C
(d) D
(e) E

Q17. In the mid-1800s an American / businessman, Charles Goodyear, dropped (A) / a rubber mixture contain (B) / sulphur on his hot stove (C) / and invented vulcanization. (D) / No error (E)
(a) A
(b) B
(c) C
(d) D
(e) E

Q18. Abdominal pain, one of the / most common symptom of (A) / childhood, can be indicative of (B) / many gastrointestinal disorders but usually (C) / occurs without evidence of disease. (D) / No error (E)
(a) A
(b) B
(c) C
(d) D
(e) E

Directions (19-21): In each of the questions given below four words are given in bold. These four words may or may not be in their correct position. The sentence is then followed by options with the correct combination of words that should replace each other in order to make the sentence grammatically and contextually correct. Find the correct combination of the words that replace each other. If the sentence is correct as it is then select option 'No correction required' as your choice.

Q19. With parts of the **pipes (1)** being covered after laying of the **canal (2)** and construction material and debris **strewn** (**3)** along the banks, **encroachers (4)** are taking over the canal.
(a) 2-4 and 1-3
(b) Only 2 - 4
(c) No correction required
(d) Only 1- 2
(e) 1-4 and 2-3

Q20. People thronged the burial **families** (**1)** to offer a range of dishes and **departed (2)** to the deceased members of their **ground (3)** in a symbolic gesture of love towards the **desserts (4)** ones.
(a)1-3 and 2-4
(b) Only 1 -3
(c) Only 2 -4
(d) No correction required
(e) 1-2 and 3-4

Q21. Authoritarian regimes, in **strength (1)**, are static regimes **where (2)** a supreme leader **assumes (3)** know-it-all power and **essence (4)**.
(a) Only 2 -3
(b) 1-3 and 2-4
(c) 1 -4 only
(d) No correction required
(e) Only 2 -4

Directions (22-24): Each of the following questions has two sentences. Each sentence has a blank. From the options given below the sentence, choose the set of words which fits into both the blanks and mark the same as your answer.

Q22. Mobile signal _____is weak in _____regions.
(a) reachability, hill
(b) volume, central
(c)affordability, outskirts
(d) strength, interior
(e)strength, hill

Q23. A large part of the world has _____the Russian_____.
(a) condemned, invasion
(b)criticize, welcome
(c)appreciated, intrude
(d)condemned, abandon
(e)criticism, invasion

Q24. The history of communal _____of India is_____-.
(a) dissonance, benign
(b)dissonance, exemplifying
(c) harmony, unique
(d) riots, smashing
(e) harmony, reprove

Directions (25-27): In the following questions two columns are given containing three sentences/phrases each. In first column, sentences/phrases are A, B and C and in the second column the sentences/phrases are D, E and F. A sentence/phrase from the first column may or may not connect with another sentence/phrase from the second column to make a grammatically and contextually correct sentence. Each question has five options, four of which display the sequence(s) in which the sentences/phrases can be joined to form a grammatically and contextually correct sentence.

Q25. Column (1)
(A)His parents love him so much that
(B)He can finish ten pizzas in one go
(C)Tomorrow is his birthday party
Column (2)
(D) we bought him a house as a wedding gift
(E) I am going to get a lot many gifts from my friends
(F) She has not been active on any social media platforms
(a) A-D
(b) B-E
(c) B-F
(d) B-E & C-F
(e) none of these

Q26. Column (1)
(A)The textbook of mathematics written by my uncle
(B) His mother has raised him to be a good man
(C) In the search for few diamonds, he lost
Column (2)
(D)the kilograms worth of gold she had
(E)is used by my teachers at school
(F) and respect all women
(a) A-E
(b) B-E & C-F
(c) A-E & B-F
(d) A-F & B-D
(e) None of these

Q27. Column (1)
(A) Indian workers, most of them in the informal sector
(B) We have to come up with some innovative mechanism
(C) The matching contribution should ensure that
Column (2)
(D) have no social security net
(E) for people to opt for such a useful product
(F) had become increasingly relevant
(a) A-D
(b) A-D & B-E
(c) C-F
(d) A-E & C-F
(e) None of these

Directions (28-30): In the following question, sentences are given with a part in bold. The given phrase in the bold may or may not contain an error. The options following can replace the incorrect phrase. The correct phrase that is to be replaced will be your answer. If the sentences are correct then select 'No improvement required' as your answer.

Q28. Central India and the southern peninsula **were expected to get most** rain than their historical average.
(a)were expect to get more
(b)were expected to got more
(c)were expected to get mostly
(d)were expected to get more
(e)No improvement required

Q29. The hybrid pitches **could now been used for** ODIs and T20Is, for men and women if both the rival teams agree.
(a)could now been use for
(b)could now be used for
(c)could now be use for
(d)could now being used for
(e)No improvement required

Q30. In economics, the supply and the **demand normally correlated because** one factor determines another element.
(a) demand normally correlated as
(b) demand normal correlated because
(c) demands normally correlated because
(d) demand normally correlate because
(e) No improvement needed

Q31. Average age of a group of 20 students is 18 years. By mistake at the time of calculating the average age, age of two students 16years, 15years were taken as 18years and 20years. Calculate the exact average age of the group?
(a)17.65
(b)18.65
(c)19.65
(d)15.65
(e)14.65

Q32. A shopkeeper purchased an item at Rs. 1000. He spent Rs. 500 on transportation, Rs. 200 on Labour, Rs. 300 on packaging. He then sells it at 25% profit to a customer. The customer spent Rs. 200 on it and sell it at 30% profit. Selling price of item for shopkeeper is approximately what percent more or less than the selling price for customer?
(a)52%
(b)29%
(c)36%
(d)43%
(e)25%

Q33. A mixture contains milk and water in the ratio 4:1. On adding another mixture to it containing 20 liters milk and 10 liters water to it the new ratio of water to milk becomes 1:3. Find the difference in the quantity(in litres) of milk and water in the initial mixture.
(a)10
(b)20
(c)30
(d)40
(e) 50

Q34. A boat can row 20 km downstream and 20 km upstream in 12 hours. If speed of boat in still water is 50% more than the speed of stream. Find in how much time boat will cover 50 km downstream?
(a)9hr
(b)8hr
(c)7hr
(d)5hr
(e)6hr

Q35. The ratio of age of Ram to Shyam 6 years ago was 1:2. Present age of Ram is 5 years more than the present age of Prem. Ratio of age of Prem and Shyam is 5:14. Find the age of Ram after 10 years (In years).
(a)24
(b)23
(c)21
(d)22
(e)20

Q36. The volume of a cylinder is 5280m³ and curved surface area of the cylinder is 704m². Find the ratio of radius to height of the cylinder?
(a) 225 : 112
(b) 226 : 119
(c) 223 : 112
(d) 227 : 112
(e) 229 :112

Q37. A father had 1000 rupees. He divided the sum between his two sons equally. One son invests the sum at 10% simple interest for 2 years and another son invests the sum at 20% compound interest for 2 years. Find the sum of the interest received by both of them?
(a) Rs. 440
(b)Rs. 320
(c) Rs. 500
(d) Rs. 120
(e) Rs. 660

Q38. There are x black balls, x-2 yellow balls and x+2 green balls in a bag A. The probability of choosing two black balls when 2 balls are picked at random from the bag is 1/12. Find the total balls in the bag.
(a) 9
(b) 18
(c) 27
(d) 36
(e) 45

Q39. If an employee spends 20% of the salary on rent, 10% of the remaining he gives to his grandmother and 30% of the remaining spends on food and rest he saves. Find the ratio of savings to expenditure of the employee?
(a) 63:62
(b) 62:63
(c) 64:29
(d) 81: 29
(e) 29:81

Q40. The cost price of article A is equals to selling price of the article B. if article A is sold at the 33⅓% profit and article B is sold at the 50% profit and the sum of the cost price of article B and selling price of article A is Rs. 672, then find the cost price of article A?
(a) Rs. 224
(b) Rs. 336
(c) Rs. 380
(d) Rs. 420
(e) Rs. 448

Directions (41-45): In the following bar graph number of shirts and pants manufactured by a company in a month are given. Read the graph carefully and answer the following questions.
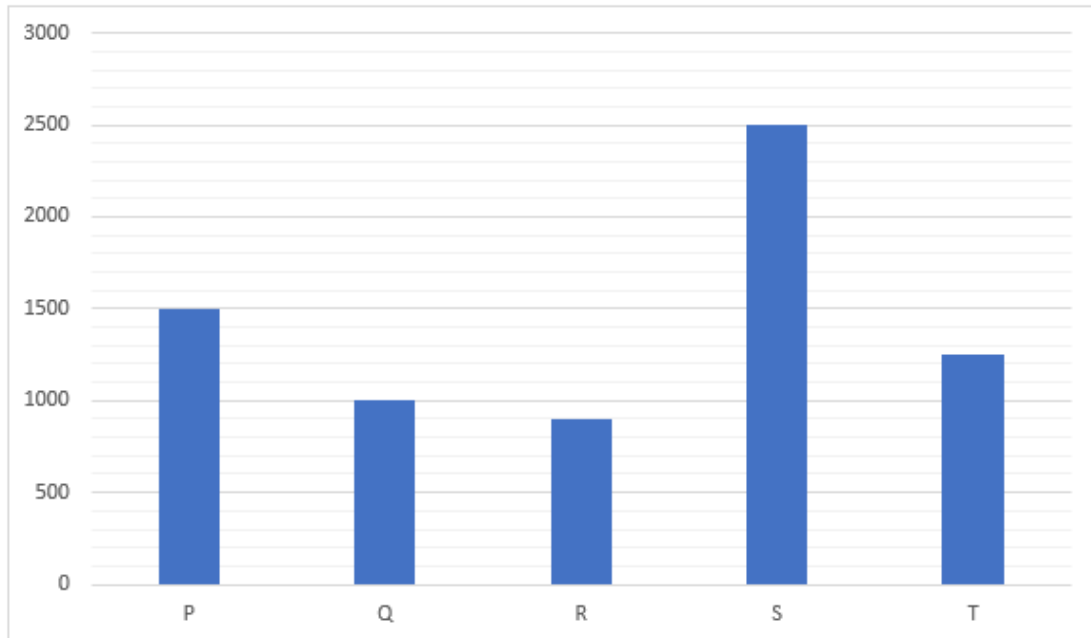
Q41. The total number of shirts and pants manufactured by S is what percent less or more with respect to T?
(a) 100%
(b) 200%
(c) 50%
(d) 60%
(e) 75%

Q42. If the shirt and pants manufactured by the company R is in the ratio of 1:2. Find the ratio of shirt manufactured by R to the total number of shirts and pants manufactured by T?
(a) 7:25
(b) 6:25
(c) 4:3
(d) 3:25
(e) 25:6

Q43. Find the average number of shirts and pants manufactured by all the companies?
(a) 7290
(b) 1210
(c) 1430
(d) 7150
(e) 1420

Q44. If the ratio of shirt to pant for the company P, R, and T are in the ratio of 3:7, 4:5 and 3:2 respectively. Find the total number of shirt and the total number of pants of these three companies respectively?
(a) 1000, 2000
(b) 2050, 1600
(c) 1900, 2200
(d) 1600, 2050
(e) 1800, 6000

Q45. Find the ratio of total number of shirts and pants manufactured by Q and R together to P and S together?
(a) 30:31
(b) 23:17
(c) 17:23
(d) 40:19
(e) 19:40

Q46. A, B, and C started a business with the ratio of investment of 2:3:4 respectively. After one year, A doubled the investment and C withdraw half of the investment. Find the ratio of profit earned by B and C at the end of two years.
(a) 4:3
(b) 3:1
(c) 2:1
(d) 1:1
(e) 5:8

Q47. A is 50% more efficient than B, who take double time than C to complete a work. A can complete the work in 'x' days while C can complete the same work in (x – 15) days. In how many days all three can completes the same work together?
(a) 36 days
(b) 30 days
(c) 22.5 days
(d) 20 days
(e) 18 days

Directions (48-52): The following table shows total no. of laptops sold by five different shops and ratio of Dell laptops to HP laptops sold by each shop. Read the following table carefully and answer the questions given below.

Shops	Total number of laptops	Dell : HP
P	950	11:8
Q	850	8:9
R	1080	5:7
S	980	9:5
T	1150	12:11

Q48. Find the ratio between no. of Dell laptop sold by shop P and R together to number of HP laptop sold by shop Q and S together.
(a) 5:8
(b) 4:5
(c) 5:9
(d) 5:4
(e) 2:7

Q49. Price of each HP and Dell laptop is Rs.20000 and Rs.22000 respectively find the difference between the amount earned by shop T after selling both type of laptops.
(a) Rs. 1050000
(b) Rs. 1200000
(c) Rs. 1100000
(d) Rs. 1240000
(e) Rs. 2200000

Q50. Number of HP laptop sold by shop M is 20% more than that of shop S and ratio of Dell to HP laptop sold by shop M is 5:7. Find the total number of laptops sold by shop M.
(a) 724
(b) 728
(c) 712
(d) 720
(e) 716

Q51. What is the average number of HP laptop sold by S and Q together?
(a) 440
(b) 400
(c) 402
(d) 410
(e) 448

Q52. Number of Dell laptop sold by shop R is what % no. of HP laptop sold by shop P.
(a) 112.5%
(b) 81%
(c) 50%
(d) 87.5%
(e) 85%

Directions (53-57): What approximate value will come in place of question mark (?) in the given questions (You are not expected to calculate the exact value.)

Q53. $199.99 + 12.01 \% \text{ of } 499.99 - \sqrt[8]{63.99} = ?^2$
(a) 12
(b) 16
(c) 14
(d) 18
(e) 8

Q54. $\frac{84.01}{?} + 26.03 \% \text{ of } 799.97 + \sqrt[4]{16.03} = (5.99)^3$
(a) 42
(b) 21
(c) 12
(d) 14
(e) 4

Q55. ? % of 549.99 + 20.03 % of 649.99 = 349.99
(a) 36%
(b) 24%
(c) 20%
(d) 30%
(e) 40%

Q56. 5.03 ×(? +12.01)+29.99 % of 899.99= 359.99
(a) 10
(b) 8
(c) 6
(d) 4
(e) 12

Q57. $36.01 \% \text{ of } ? + (18.01)^2 = 773.98$
(a) 1250
(b) 1050
(c) 750
(d) 1750
(e) 500

Directions (58-60): Read the following information carefully and answer the questions given below. Number of male and female employee work in four different company i.e., P, Q, R and S. Number of male employee in company P is 560 which is 100% more than that of female. Ratio of male to female employee in company Q is 4:5 and number of females in company P is equal to number of male employees in company Q. Total number of male in all the four companies is 1760 and total no. of employees in all the four companies is 3500. no. of male in company S is 420 and no. of female in company R is 650.

Q58. Find the total number of male employees in company R and number of female employees in company S together.
(a) 925
(b) 980
(c) 915
(d) 960
(e) 940

Q59. Find the average number of female employees in all the four company.
(a) 425
(b) 465
(c) 445
(d) 475
(e) 435

Q60. Number of female employees in company S is approximately what % no. of male employee in company P.
(a) 44%
(b) 70%
(c) 54%
(d) 94%
(e) 82%

Directions (61-65): In the following questions, two equations (I) and (II) are given. You have to solve both the equations and answer the following questions.

Q61.
I. $x^2 = 81$
II. $(2y + 3)^2 = 49$

(a) x<y
(b) x>y
(c) x≤y
(d) x=y or no relation between x & y.
(e) x≥y

Q62.
I. $x^2 + x - 56 = 0$
II. $y^2 + 17y + 72 = 0$

(a) x<y
(b) x>y
(c) x≤y
(d) x=y or no relation between x & y.
(e) x≥y

Q63.
I. $x^2 - 25x + 156 = 0$
II. $y^2 - 27y + 182 = 0$

(a) x<y
(b) x>y
(c) x≤y
(d) x=y or no relation between x & y.
(e) x≥y

Q64.
I. 3x + 2y = 7
II. 2x + 5y = 12
(a) x<y
(b) x>y
(c) x≤y
(d) x=y or no relation between x & y.
(e) x≥y

Q65.
I. $4x^2 - 21x + 27 = 0$
II. $3y^2 - 19y + 28 = 0$

(a) x<y
(b) x>y
(c) x≤y
(d) x=y or no relation between x & y.
(e) x≥y

Directions (66-70): Study the following information carefully and answer the questions given below.

Ten persons sit in two parallel rows in such a way that the persons sit in row 1 face south while the persons sit in row 2 face north. Persons sit in row 1 face the persons who sits in row 2 and vice versa. One person sits to the left of B. A sits 3rd to the right of E and faces M. O sits immediate left of the person who faces B. P sits 3rd to the right of N who doesn't face C. Q neither sit in row 2 nor with A. M doesn't sit with B in the same row. D is one of the persons.

Q66. Four of the following five are alike in a certain way and hence form a group. **Who among the one doesn't belong to that group?**
(a) Q
(b) C
(c) N
(d) E
(e) D

Q67. Who among the following sits immediate right of A?
(a) C
(b) D
(c) B
(d) No one
(e) None of these

Q68. Who among the following sits opposite to D?
(a) P
(b) O
(c)N
(d) Q
(e) Either P or N

Q69. How many persons sit between Q and M?
(a) One
(b) Two
(c) Three
(d) Either two or three
(e) None of the above

Q70. If Q is related to B in the same way P is related to C, then who among the following is related to A?
(a) D
(b) N
(c) M
(d) O
(e) None of these

Q71. If in a certain code language "another world change" is coded as "nh ae dr" similarly "change necessary world" is coded as "dr cy ae" then what will be the code for " necessary another"?
(a) ae dr
(b) dr nh
(c) cy dr
(d) nh cy
(e) Can't be determined

Directions (72-74): Study the following information carefully to answer the given questions.
Seven plants are planted in a garden in different direction at different distance with respect to each other. Plant P is 10m to the north of plant R which is 5m to the west of plant U. Plant V is 12m to the east of plant S which is 6m to the north of plant U. Plant Q is to the north of plant V and to the east of plant P. The distance between plant P and plant T is twice of the distance between plant V and plant Q. Plant P is to the east of plant T.

Q72. In which direction is plant T with respect to plant V?
(a) West
(b) South west
(c) North east
(d) North west
(e) South

Q73. What is the sum of the distance between (plant P and plant T) and (plant Q and plant V)?
(a) 17m
(b) 14m
(c) 12m
(d) 15m
(e) 16m

Q74. Four of the following five are alike in a certain way and hence form a group. Find the one who doesn't belong to the group?

(a) S-Q

(b) R-V

(c) U-V

(d) R-Q

(e) T-U

Directions (75-78): Study the following information carefully to answer the given questions.

Ten persons i.e., M, N, O, P, Q, R, S, T, U and V live in two different flats (but not necessarily in the same order) viz. Flat A and Flat B of a five-floor building such that the lowermost floor is numbered as 1 and the floor just above it is numbered as 2 and so on till the topmost floor is numbered as 5. Flat A is to the west of flat B whereas flat A of floor 2 is immediately above flat A of floor 1 and flat B of floor 2 is immediately above flat B of floor 1 and so on.

Two floors gap between U and V who lives below U's floor. U lives on an odd numbered floor and lives just to the north- west of R. R lives three floors above P. S lives on the same floor as P but not in flat A. M lives on an even numbered floor and lives in the north- west N. N doesn't live on odd numbered floor. Q lives below O in the same named flat as P.

Q75. In which of the following flat and floor does T live?

(a) Flat A, floor 3

(b) Flat B, floor 3

(c) Flat A, floor 5

(d) Flat B, floor 1

(e) Flat B, floor 2

Q76. Which among the following statement(s) is/are not true?

I. Q lives on an odd numbered floor

II. O and U live in the same named flat

III. V lives in flat A

(a) Both I and II

(b) Both II and III

(c) Only II

(d) Both I and III

(e) Only III

Q77. Four of the following five are alike in a certain way and hence form a group. Find the one who doesn't belong to the group?
(a) U
(b) T
(c) P
(d) S
(e) M

Q78. How many floors are there between U and S?
(a) One
(b) Two
(c) Three
(d) Either one or two
(e) None

Directions (79-83): In each of the questions below, some statements are given followed by some conclusions numbered as I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts. Give answer.

Q79. Statements:
No gold is stone.
Only a few metal is stone.
Some silver is gold.
Conclusions
I: All silver can be stone
II: Some metal is not gold
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Either conclusion I or II follows
(d) Neither conclusion I nor II follows
(e) Both conclusions I and II follow

Q80. Statements:
Only square is triangle.
Only a few rhombus is sphere.
Some sphere is square.

Conclusions
I: Some triangle is not rhombus
II: All rhombus can never be sphere.
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Either conclusion I or II follows
(d) Neither conclusion I nor II follows
(e) Both conclusions I and II follow

Q81. Statements:
Some butter is not cake.
Some cookies is cake.
All bread is butter
Conclusions
I: All bread being cookies is a possibility
II: Some bread is not cake.
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Either conclusion I or II follows
(d) Neither conclusion I nor II follows
(e) Both conclusions I and II follow

Q82. Statements:
Some trouser is shirt.
No skirt is shirt.
Only a few jeans are skirt.
Conclusions
I: No trouser is skirt
II: All skirt is trouser
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Either conclusion I or II follows
(d) Neither conclusion I nor II follows
(e) Both conclusions I and II follow

Q83. Statements:
Only a few bus is Jeep.
Some Jeep is truck.
All car is truck.

Conclusions I:
Some car is Bus
II: No bus is car
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Either conclusion I or II follows
(d) Neither conclusion I nor II follows
(e) Both conclusions I and II follow

Directions (84-86): Study the following information carefully to answer the given questions.

Eight persons are there in a family of three generation. T is brother- in –law of M who is daughter-in-law of J. U is father of S who is only daughter of M. J has only two children. T is paternal uncle of H. J is brother-in-law of E and has no siblings. E is brother of R.

Q84. How R is related to H?
(a) Father
(b) Grandfather
(c) Mother
(d) Grandmother
(e) Sister

Q85. Which among the following statement(s) is/are true?
I. R is elder than S
II. S is sister of H
III. E is father of M
(a) Only III
(b) Both I and II
(c) Only I
(d) All I, II and III
(e) Both I and III

Q86. How many married couples are in the family?
(a) One
(b) None
(c) Two
(d) Three
(e) Can't be determined

Directions (87-89): Study the following information carefully to answer the given questions.

Seven persons get different number of chocolates. E gets more chocolates than at most two persons. Two persons get chocolates between E and G. E gets more chocolates than K and just less chocolates than M. The number of persons gets more chocolates than K is same as the number of persons gets less chocolates than G. E has 3 chocolates less than J who has chocolates which is equal to the smallest two-digit number. J gets more chocolates than L but doesn't get the highest number of chocolates. D gets 6 chocolates more than E.

Q87. What is the sum of the chocolates does D, J and E have?
(a) 33
(b) 20
(c) 30
(d) 25
(e) 28

Q88. How many persons get less chocolates than the one who gets just more chocolates than G?
(a) Two
(b) Four
(c) Five
(d) Three
(e) More than five

Q89. What may be the possible number of chocolates does M get?
(a) 5
(b) 12
(c) 9
(d) 6
(e) 11

Q90. If we form a four-letter meaningful word with 2nd, 4th, 9th and 10th letter from the left end of the word 'DISCUSSION', then what would be the first letter of that meaningful word? If no meaningful word is formed, then mark the answer as X. If more than one meaningful word is formed then, mark the answer as Z.
(a) C
(b) N
(c) X
(d) I
(e) Z

Directions (91-95): Study the following information carefully and answer the questions given below.

Eight persons from P to W were born in eight different months of a year but not necessarily in the same order. Months are from January to August. Consecutive alphabetical named persons are not born in adjacent month. No one was born between R and P who was born in the month having minimum number of days. Three persons were born between R and U. Three persons were born between Q and V who was born just after S.

Q91. How many persons were born between R and W?
(a) Two
(b) Three
(c) Four
(d) Five
(e) More than five

Q92. Who among the following was born in June?
(a) S
(b) V
(c) R
(d) W
(e) None of these

Q93. Four of the following five are alike in a certain way and thus forms a group, then who among the following doesn't belong to that group?
(a) T
(b) R
(c) Q
(d) S
(e) V

Q94. Who among the following was born just before S?
(a) R
(b) W
(c) V
(d) Either R or V
(e) Either W or R

Q95. In which of the following month V was born?
(a) July
(b) April
(c) March
(d) May
(e) August

Q96. How many pairs of letters are there in the word 'SIMPLIFICATE', each of which has as many letters between them as they have in English alphabetical series (both forward and backward direction)?
(a) One
(b) Three
(c) Four
(d) Two
(e) More than four

Directions (97-100): Study the following information carefully and answer the questions given below.
Nine persons like three different subjects viz., Sociology, Economics and English. Not less than two persons and not more than four persons like the same subject.
A and M like same subject but not English. B likes a subject only with R. Y likes Economics. O and P like same subject same as the Y likes. Z and U like same subject.

Q97. Who among the following likes Economics?
(a) R
(b) B
(c) O
(d) Z
(e) Both Z and R

Q98. Who among the following likes English?
(a) B
(b) M
(c) R
(d) Both B and R
(e) None of these

Q99. Which of the following statement is true?
(a) Z likes English.
(b) A and U like same subject
(c) O and U like same subject
(d) B doesn't likes English
(e) All are true

Q100. Which of the following combination is not true?
(a) O- English
(b) Z - Sociology
(c) B- English
(d) P- Economics
(e) None is true

Solutions

S1. Ans.(a)
Sol. In the last paragraph, it is given that it's necessary to consider how people, processes and technology all play equally important roles in keeping information safe. Thus, it can be inferred that all these things play very important roles in keeping information safe. All the other options cannot be inferred. Hence, option (a) appears to be the most appropriate answer choice.

S2. Ans.(b)
Sol. Here, "malicious" means characterised by malice.
(a) malignant- used about a disease that spreads in the body, likely to cause death if not controlled.
(b) decent- honest and fair.
(c) mischievous- causing or showing a fondness for causing trouble in a playful way.
(d)nasty- very bad or unpleasant.

S3. Ans.(d)
Sol. The concerned sentence states that one of the many advantages to living in a world where every device is linked is convenience. Thus, we can infer that "connected" is the most appropriate word to fill in the given blank.
(a) worsening- to become worse or to make something worse.
(b) earnest- resulting from or showing sincere and intense conviction.
(c) reluctant- unwilling and hesitant; disinclined.
(d) craving- a powerful desire for something.
(e) esurient- hungry or greedy.

S4. Ans.(b)

Sol. Here, "convenience" means the state of being able to proceed with something without difficulty.

(a) annihilation- complete destruction or obliteration.

(b) usefulness- the quality or state of being useful.

(c) hindrance- an obstacle or obstruction.

(d) accessory- aiding an activity or process in a minor way; subsidiary or supplementary.

S5. Ans.(a)

Sol. In the third paragraph, second line, it is mentioned that the threat to electronic assets are hackers who have malicious intent to steal propriety data and information via data breaches. All the other options are not threats to electronic assets. Hence, option (a) is the most appropriate answer choice.

S6. Ans.(c)

Sol. Referring to the opening lines of the third paragraph, it is given

"CompTIA's Chief Technology Evangelist, James Stanger says it best when he defines cybersecurity as "focusing on protecting electronic assets – including internet, WAN and LAN resources – used to store and transmit that information." Hence, option (c) is correct.

S7. Ans.(e)

Sol. None of the statements can be verified to be true according to the passage, and thus, the correct option is option (e).

S8. Ans.(b)

Sol. From the first paragraph, it can be deduced that the author has used the example of a square and a rectangle to relate IT security and cyber security. He makes the user aware of the differences that have dissolved over the years between the terms, as he mentioned earlier in the passage, specifically, in the first paragraph. Hence, option (b) appears to be the most appropriate answer choice.

S9. Ans.(b)

Sol. The correct rearrangement of the given phrases to make meaningful sentence is BACD. Therefore the meaningful sentence will be, "The country has an opportunity to position itself as a major tourism destination during India's presidency of the G20"

S10. Ans.(c)

Sol. The correct rearrangement of the given phrases to make meaningful sentence is CBAD. Therefore, the meaningful sentence will be," India, with its special historic bonds with Russia, was the only country to demand a cessation of hostilities and want diplomacy and democracy

S11. Ans.(d)
Sol. The correct rearrangement of the given phrases to make meaningful sentence is ADCB. Therefore, the meaningful sentence will be, "Both India and South Africa would be particularly keen to put in their best efforts in the final dress rehearsal."

S12. Ans.(c)
Sol. The correct rearrangement of the given phrases to make meaningful sentence is CDAB. Therefore, the meaningful sentence will be, "The Asian Development Bank is allocating 14 $ billion to fight the growing food insecurity crisis in the Asia Pacific"

S13. Ans.(c)
Sol. The correct rearrangement of the given phrases to make meaningful sentence is CBAD. Therefore, the meaningful sentence will be, "The DART craft carried a high-resolution DRACO Camera to observe the collision and its consequences."

S14. Ans.(c)
Sol. The rearrangement that is needed to make the sentence correct is CBDA. Thus, the sentence will be, "Satellite communication has been gaining prominence globally and is seeing a lot of interest, investments, and innovations"

S15. Ans.(c)
Sol. "To exist" must be replaced by "to have existed" as the tense of the clause is past perfect. The change makes the sentence grammatically correct, and thus, the error lies in part C.

S16. Ans.(e)
Sol. There is no error in the sentence as the sentence is grammatically correct, and thus, option (e) is the correct choice of answer.

S17. Ans.(b)
Sol. The verb "contain" should be replaced with the adjective "containing", as it describes the rubber mixture, and thus, the error lies in part B.

S18. Ans.(a)
Sol. When we use "one of the", we describe the entity to be one of a multiple. To denote the multiple entities, we use the plural form of the noun, and thus, "symptom" should be replaced with "symptoms". The error thus lies in part B.

S19. Ans.(d)
Sol. Here, 1-2 i.e., 'pipes – canal' will be replaced to make the sentence grammatically and contextually correct.
The sentence thus formed is: With parts of the canal being covered after laying of the pipes and construction material and debris strewn along the banks, encroachers are taking over the canal.

S20. Ans.(a)
Sol. Here, 1-3 and 2-4 i.e., 'families–ground' and 'departed- desserts' will be replaced to make the sentence grammatically and contextually correct.
The sentence thus formed is: People thronged the burial ground to offer a range of dishes and desserts to the deceased members of their families in a symbolic gesture of love towards the departed ones.

S21. Ans.(c)
Sol. Here, 1-4, i.e., 'strength– essence' will be replaced to make the sentence grammatically and contextually correct.
The sentence thus formed is: Authoritarian regimes, in essence, are static regimes where a supreme leader assumes know-it-all power and strength.

S22. Ans.(d)
Sol. The correct pair of words for the given blanks is 'strength, interior'
affordability means ability to be afforded; inexpensiveness.
outskirts means the outer parts of a town or city.
strength means the potency, intensity, or speed of a force or natural agency.
interior means situated on or relating to the inside of something; inner.

S23. Ans.(a)
Sol. The correct pair of words for the given blanks is 'condemned, invasion'
condemned means officially declared unfit for use.
invasion means an instance of invading a country or region with an armed force.
criticize means indicate the faults of (someone or something) in a disapproving way.
appreciated means recognize the full worth of.
intrude means put oneself deliberately into a place or situation where one is unwelcome or uninvited.
abandon means the action or fact of abandoning or being abandoned.

S24. Ans.(c)
Sol. The correct pair of words for the given blanks is 'harmony, unique'
dissonance means lack of agreement or harmony between people or things.
benign means gentle and kindly.
exemplifying means be a typical example of.

harmony means the state of being in agreement or concord.

unique means being the only one of its kind; unlike anything else.

riots means a violent disturbance of the peace by a crowd.

smashing means excellent; wonderful.

reprove means reprimand (someone).

S25. Ans.(e)

Sol. None of the phrases in column 1 can be connected to any of the given phrases in column 2 to form contextually meaningful sentences. Thus none of these should be the answer.

S26. Ans.(c)

Sol. Among the given phrases, (A) and (E) can be successfully connected to form a contextually meaningful and grammatically correct statement. Similarly, (B) and (F) can be connected to form grammatically correct and meaningful sentence. The statements thus formed will be:

(i) The textbook of mathematics written by my uncle is used by my teachers at school.

(ii) His mother has raised him to be a good man and respect all women.

S27. Ans.(b)

Sol. Among the given phrases, (A) and (D) can be successfully connected to form a contextually meaningful and grammatically correct statement. Similarly, (B) and (E) can be connected to form grammatically correct and meaningful sentence. The statements thus formed will be:

(i) Indian workers, most of them in the informal sector have no social security net

(ii) We have to come up with some innovative mechanism for people to opt for such a useful product

S28. Ans.(d)

Sol. The highlighted phrase is incorrect because adjective 'most' should be replaced with 'more' as we need comparative degree here. Option (a) is incorrect because 'expected' should be V3 to make passive sentence. In option (b), 'got' should be replaced with 'get' because 'to' is always followed by V1. In option (c), 'mostly' which is an adverb should be replaced with 'most' (adjective) to modify noun 'rain'. Therefore the correct choice is option (d).

S29. Ans.(b)

Sol. The highlighted phrase is incorrect because modal verb, could always followed by base form of the verb hence 'been' is incorrect and option (d) and option (a) are also incorrect. In option (c), 'use' should be replaced with 'used' as we need passive verb here. Therefore, option (b) is the correct choice.

S30. Ans.(d)

Sol. As the statement in economics is a general fact, the tense to be used is a simple present tense, and thus "correlated" should be replaced by "correlate" to make the sentence correct.

S31. Ans.(a)
Sol.

Total age of group = 20× 18 = 360
= 360 − 18 − 20 + 16 + 15 = 353

Correct average = $\frac{353}{20}$ = 17.65

S32. Ans.(b)
Sol.

Cost price of item for shopkeeper = 1000 + 500 + 200 + 300 = Rs. 2000

Selling price of item = 2000× $\frac{125}{100}$ = Rs. 2500

Cost price of item for customer = 2500 + 200 = Rs. 2700

Selling price of item for customer = 2700 × $\frac{130}{100}$ = Rs. 3510

= $\frac{3510-2500}{3510}$ × 100 = 28.77% ≈ 29%

S33. Ans.(c)
Sol.

Let initial quantity of milk and water be 4x and x liters.

$\frac{4x+20}{x+10} = \frac{3}{1}$

4x + 20 = 3x + 30

x = 10

Initially, milk = 40 liters

Initially, water = 10 liters

Required difference = 30 litres

S34. Ans.(d)
Sol.

Let speed of boat be $3x$ km/hr.

So, speed of stream be $3x \times \frac{100}{150} = 2x$ km/hr.

ATQ,

$\frac{20}{3x+2x} + \frac{20}{3x-2x} = 12$

$x = 2$

Speed of boat in still water = $6\ km/hr$

Speed of stream = $4km/hr$

Required time = $\frac{50}{6+4}$ = $5hr$

S35. Ans.(e)
Sol.

Let present age of Ram be r years.
Present age of Shyam be s years.
Present age of Prem be p years.

$\frac{r-6}{s-6} = \frac{1}{2}$

$2r - 12 = s - 6$

$2r - s = 6$...................(I)

$r = 5 + p$........................(II)

p : s = 5 : 14

Let p be 5x and s be 14x   ....(III)
Put (III) in (I)&*(II)

$2r - 14x = 6$

r = 3+7x ....(iv)

r = 5 + 5x ....(v)

From (iv)&(v)

3 + 7x = 5 + 5x

x = 1

r = 10year

p = 5 year

s = 14 year.

Age of Ram after 10 years = 20years

S36. Ans.(a)
Sol.

Given,

$\pi r^2 h = 5280$

$2\pi r h = 704$

On dividing both these equations,

$\frac{r}{2} = \frac{5280}{704}$

r = 15m

h = $\frac{112}{15}$ m

Required ratio, r : h = 225 : 112

S37. Ans.(b)
Sol.

Both sons got Rs. 500 each.

First son received interest = $\frac{500 \times 10 \times 2}{100}$ = Rs. 100

Second son received interest = Cumulative rate of interest = $20 + 20 + \frac{20 \times 20}{100}$ = 44%

$\frac{500 \times 44}{100}$ = Rs. 220

Total interest = 220 + 100 = Rs. 320.

S38. Ans.(a)
Sol.

$Total\ balls\ in\ bag = x + x - 2 + x + 2 = 3x$

ATQ,

$\frac{^{x}C_{2}}{^{3x}C_{2}} = \frac{1}{12}$

$\frac{x(x-1)}{3x(3x-1)} = \frac{1}{12}$

4x − 4 = 3x − 1

x = 3

Total balls = 3x = 9.

S39. Ans.(a)
Sol.

Let the salary of the employee be Rs 1000x

Savings = $1000x \times \frac{80}{100} \times \frac{90}{100} \times \frac{70}{100}$ = 504x

Expenditure = 1000x − 504x = 496x

Required ratio = 504x : 496x = 63 : 62

S40. Ans.(b)
Sol.

Let cost price of article B = Rs. 100x

So, selling price of the article B = Rs. 150x

Now, cost price of the article A = Rs. 150x

So, selling price of the article A = $\frac{4}{3} \times 150x = Rs.\ 200x$

ATQ,

200x + 100x = Rs. 672

x = $\frac{672}{300}$ = 2.24 Rs.

So, cost price of article A = 150 × 2.24 = Rs. 336

S41. Ans.(a)
Sol.

Total number of shirts and pants manufactured by S= 2500
Total number of shirts and pants manufactured by T= 1250
Required % = $\frac{2500-1250}{1250} \times 100 = \frac{1250}{1250} \times 100 = 100\%$

S42. Ans.(b)
Sol.

Let the number of shirts and pants manufactured by R be x and 2x respectively.
Total number of shirts manufactured by R = $\frac{1}{3} \times 900 = 300$
Total number of shirts and pants manufactured by T= 1250
Required ratio = 300:1250=6:25

S43. Ans.(c)
Sol.

Total number of shirts and pants manufactured by all companies= $1500 + 1000 + 900 + 2500 + 1250 = 7150$
Required average = $\frac{7150}{5} = 1430$

S44. Ans.(d)
Sol.

Total number of shirts manufactured by companies P, R and T= $\frac{3}{10} \times 1500 + \frac{4}{9} \times 900 + \frac{3}{5} \times 1250 = 450 + 400 + 750 = 1600$
Total number of pants manufactured by companies P, R and T= $\frac{7}{10} \times 1500 + \frac{5}{9} \times 900 + \frac{2}{5} \times 1250 = 1050 + 500 + 500 = 2050$

S45. Ans.(e)
Sol. Total number of shirts and pants manufactured by Q and R together= 1000+900= 1900
Total number of shirts and pants manufactured by P and S together= 1500+2500=4000
Ratio = 1900:4000=19:40

S46. Ans.(d)
Sol. Let the investment made by A, B and C be Rs. 2x, Rs. 3x and Rs. 4x respectively.
Raio of profit of A, B and C ={(2x×12)+(4x×12)}:(3x×24):{(4x×12)+(2x×12)}
=(24x+48x):(72x):(48x+24x)
=1:1:1
Required ratio = 1:1

S47. Ans.(d)
Sol.

Ratio of efficiency of A to B be 3 : 2
So, ratio of time taken by A and B alone to complete the work be 2 : 3
And, ratio of time taken by B to C alone to complete the work be 2 : 1
Ratio of time taken by A, B and C alone to complete the work be 4 : 6 : 3 respectively
ATQ,

$$\frac{4}{3} = \frac{x}{x-15}$$

$\Rightarrow 4x - 60 = 3x$

$\Rightarrow x = 60$

A alone can do the work in 60 days
C alone can do the work in (60 – 15 = 45 days)
B alone can do the work $= \frac{60}{4} \times 6 = 90$ days

Work done by A, B and C together in one day $= \frac{1}{60} + \frac{1}{90} + \frac{1}{45}$

$= \frac{3+2+4}{180}$

$= \frac{9}{180} = \frac{1}{20}$

So, time taken by A, B & C together to complete the work = 20 days

S48. Ans.(d)
Sol.

Required ratio $= 950 \times \frac{11}{19} + 1080 \times \frac{5}{12}$: $850 \times \frac{9}{17} + 980 \times \frac{5}{14}$

$= 550 + 450 : 450 + 350$

$= 1000 : 800 = 5 : 4$

S49. Ans.(e)
Sol.

Required difference $= 1150 \times \frac{12}{23} \times 22000 - 1150 \times \frac{11}{23} \times 20000$

$= Rs. (1,32,00,000 - 1,10,00,000) = Rs. 22,00,000$

S50. Ans.(d)
Sol.

Number of HP laptop sold by shop M $= 980 \times \frac{5}{14} \times \frac{120}{100} = 420$

Number of Dell laptop sold by shop M $= 420 \times \frac{5}{7} = 300$

Required sum $= 420 + 300 = 720$

S51. Ans.(b)
Sol.

Required average $= \dfrac{980 \times \frac{5}{14} + 850 \times \frac{9}{17}}{2} = \dfrac{350 + 450}{2} = \dfrac{800}{2} = 400$

S52. Ans.(a)
Sol.

Number of Dell laptop sold by shop R $= 1080 \times \dfrac{5}{12} = 450$

Number of HP laptop sold by shop P $= 950 \times \dfrac{8}{19} = 400$

Required percentage $= \dfrac{450}{400} \times 100 = 112.5\%$

S53. Ans.(b)
Sol.

$200 + \dfrac{12}{100} \times 500 - 4 = ?^2$

$256 = ?^2$

$? = 16$

S54. Ans.(d)
Sol.

$\dfrac{84}{?} + \dfrac{26}{100} \times 800 + 2 = 216$

$\dfrac{84}{?} = 216 - 210$

$? = 14$

S55. Ans.(e)
Sol.

$\dfrac{?}{100} \times 550 + \dfrac{20}{100} \times 650 = 350$

$\dfrac{?}{100} \times 550 = 350 - 130$

$? = \dfrac{220 \times 100}{550} = 40\%$

S56. Ans.(c)
Sol.

$5 \times (? + 12) + \dfrac{30}{100} \times 900 = 360$

$5 \times (? + 12) = 360 - 270$

$5 \times ? = 90 - 60$

$? = 6$

S57. Ans.(a)

Sol.

$\frac{36}{100} \times ? + 324 = 774$

$\frac{36}{100} \times ? = 450$

$? = 1250$

S58. Ans.(d)

Sol. Number of male employees in company P = 560

Number of female employees in company P = $\frac{560}{200} \times 100 = 280$

Number of male employees in company Q = 280

Number of female employees in company Q = $280 \times \frac{5}{4} = 350$

Total number of males in all the four company = 1760

Total number of females in all the four company = 3500 − 1760 = 1740

Number of males in company S = 420

Number of males in company R = 1760 − 560 − 280 − 420 = 500

Number of females in company R = 650

Number of females in company S = 1740 − 280 − 350 − 650 = 460

Required sum = 500+460=960

S59. Ans.(e)

Sol. Number of male employees in company P = 560

Number of female employees in company P = $\frac{560}{200} \times 100 = 280$

Number of male employees in company Q = 280

Number of female employees in company Q = $280 \times \frac{5}{4} = 350$

Total number of males in all the four company = 1760

Total number of females in all the four company = 3500 − 1760 = 1740

Number of males in company S = 420

Number of males in company R = 1760 − 560 − 280 − 420 = 500

Number of females in company R = 650

Number of females in company S = 1740 − 280 − 350 − 650 = 460

Required average = $\frac{280+350+650+460}{4} = 435$

S60. Ans.(e)

Sol. Number of male employees in company P = 560

Number of female employees in company P = $\frac{560}{200} \times 100 = 280$

Number of male employees in company Q = 280

Number of female employees in company Q = $280 \times \frac{5}{4} = 350$

Total number of males in all the four company = 1760

Total number of females in all the four company = 3500 − 1760 = 1740

Number of males in company S = 420

Number of males in company R = 1760 − 560 − 280 − 420 = 500

Number of females in company R = 650

Number of females in company S = 1740 − 280 − 350 − 650 = 460

Required percentage = $\frac{460}{560} \times 100 = 82.14\% \approx = 82\%$

S61. Ans.(d)

Sol.

I. $x^2 = 81$

x = ± 9

II. $(2y + 3)^2 = 49$

2y + 3 = ± 7

If 2y + 3 = 7

2y = 4

y = 2

if 2y + 3 = −7

2y = −10

y= -5

So, no relation.

S62. Ans.(e)

Sol.

I. $x^2 + x - 56 = 0$

$x^2 + 8x − 7x - 56 = 0$

x(x + 8) −7 (x + 8) = 0

(x − 7) (x + 8) = 0

x = -8, 7

II. $y^2 + 17y + 72 = 0$

$y^2 + 8y + 9y + 72 = 0$

y (y + 8) + 9 (y + 8) = 0

(y+8)(y+9)=0

y = -8, -9

So, $x \geq y$

S63. Ans.(c)
Sol.
I. $x^2 - 25x + 156 = 0$
$\Rightarrow x^2 - 12x - 13x + 156 = 0$
$\Rightarrow (x-12)(x-13) = 0$
$\Rightarrow x = 12, 13$
II. $y^2 - 27y + 182 = 0$
$y^2 - 13y - 14y + 182 = 0$
$(y-13)(y-14) = 0$
$y = 13, 14$
$y \geq x$

S64. Ans.(a)
Sol. I. $3x + 2y = 7$
II. $2x + 5y = 12$
Solving eq. (I) and (II),
We get,
$x = 1$ & $y = 2$
so, $y > x$

S65. Ans.(d)
Sol.
I. $4x^2 - 21x + 27 = 0$
$\Rightarrow 4x^2 - 12x - 9x + 27 = 0$
$\Rightarrow 4x(x - 3) - 9(x - 3) = 0$
$\Rightarrow (x - 3)(4x - 9) = 0$
$x = 3, \frac{9}{4}$
II. $3y^2 - 19y + 28 = 0$
$\Rightarrow 3y^2 - 12y - 7y + 28 = 0$
$\Rightarrow 3y(y - 4) - 7(y - 4) = 0$
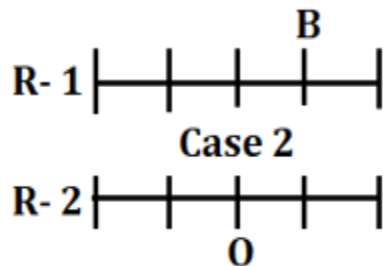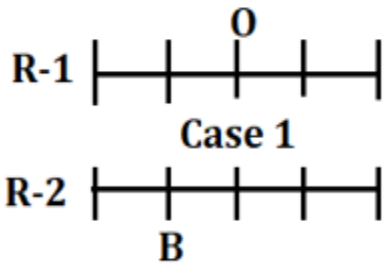$\Rightarrow (y - 4)(3y - 7) = 0$
$\Rightarrow y = 4, \frac{7}{3}$
No relation

S66. Ans.(b)
Sol. One person sits to the left of B.O sits immediate left of the person who faces B. There are two possible cases: -

O
R-1 ⊢┼┼┼┤
    Case 1
R-2 ⊢┼┼┼┤
  B

B
R-1 ⊢┼┼┼┤
    Case 2
R-2 ⊢┼┼┼┤
    O

M doesn't sit with B in the same row. A sits 3rd to the right of E and faces M.P sits 3rd to the right of N who doesn't face C. Q neither sit in row 2 nor with A, so case 2 is cancelled here: -

Q P O M N
R-1 ⊢┼┼┼┤
    Case 1
R-2 ⊢┼┼┼┤
  E B C A

      A   B E
R-1 ⊢┼┼┼┤
    Case 2
R-2 ⊢┼┼┼┤
  N M O P

D is one of the persons. Hence, the final arrangement is: -

Q P O M N
R-1 ⊢┼┼┼┤

R-2 ⊢┼┼┼┤
  E B C A D
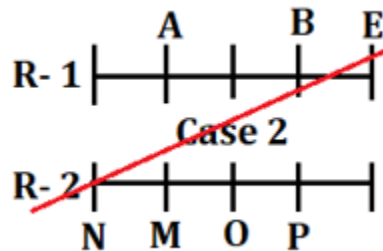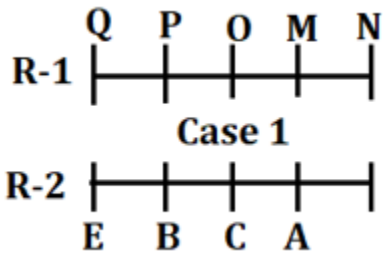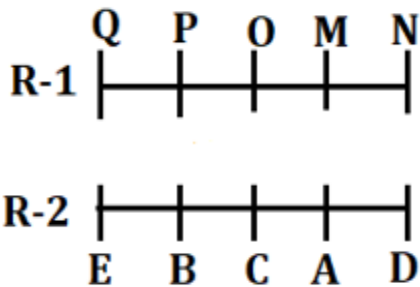
Except C, all of them sit at the extreme end of the rows.

S67. Ans.(b)
Sol. One person sits to the left of B.O sits immediate left of the person who faces B. There are two possible cases: -

O
R-1 ⊢┼┼┼┤
    Case 1
R-2 ⊢┼┼┼┤
  B

B
R-1 ⊢┼┼┼┤
    Case 2
R-2 ⊢┼┼┼┤
    O

M doesn't sit with B in the same row. A sits 3rd to the right of E and faces M.P sits 3rd to the right of N who doesn't face C. Q neither sit in row 2 nor with A, so case 2 is cancelled here: -
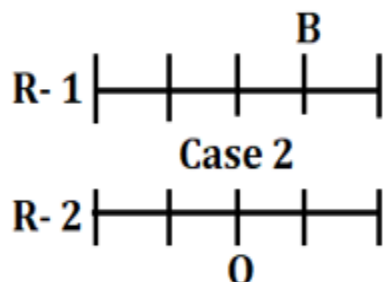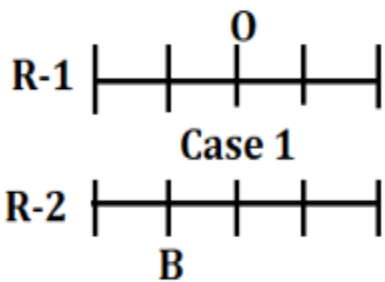
R-1 $\begin{array}{ccccc} Q & P & O & M & N \\ \vdash & + & + & + & \dashv \end{array}$

Case 1

R-2 $\begin{array}{ccccc} \vdash & + & + & + & \dashv \\ E & B & C & A \end{array}$

R-1 $\begin{array}{cccc} & A & & B & E \\ \vdash & + & + & + & \end{array}$

Case 2

R-2 $\begin{array}{cccc} \vdash & + & + & + & \dashv \\ N & M & O & P \end{array}$

D is one of the persons. Hence, the final arrangement is: -

R-1 $\begin{array}{ccccc} Q & P & O & M & N \\ \vdash & + & + & + & \dashv \end{array}$

R-2 $\begin{array}{ccccc} \vdash & + & + & + & \dashv \\ E & B & C & A & D \end{array}$
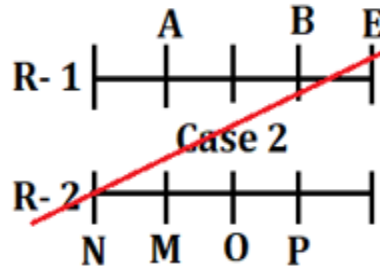
D sits immediate right of A.

S68. Ans.(c)

Sol. One person sits to the left of B.O sits immediate left of the person who faces B. There are two possible cases: -

R-1 $\begin{array}{cccc} & & O & \\ \vdash & + & + & + & \dashv \end{array}$

Case 1

R-2 $\begin{array}{cccc} \vdash & + & + & + & \dashv \\ & B & & \end{array}$

R-1 $\begin{array}{cccc} & & & B \\ \vdash & + & + & + & \dashv \end{array}$

Case 2

R-2 $\begin{array}{cccc} \vdash & + & + & + & \dashv \\ & & O & \end{array}$

M doesn't sit with B in the same row. A sits 3rd to the right of E and faces M.P sits 3rd to the right of N who doesn't face C. Q neither sit in row 2 nor with A, so case 2 is cancelled here: -
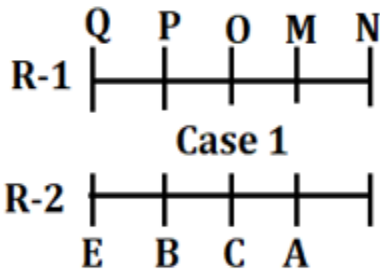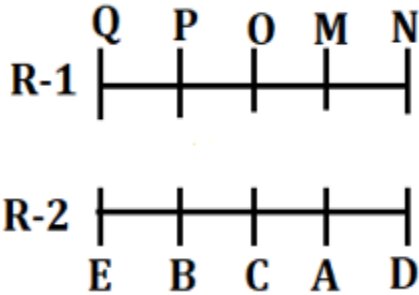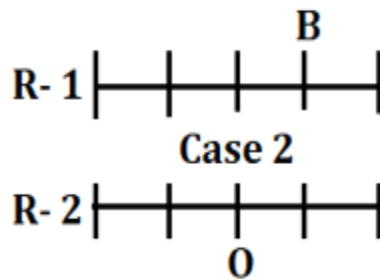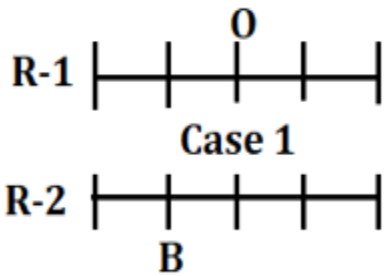
R-1 $\begin{array}{ccccc} Q & P & O & M & N \\ \vdash & + & + & + & \dashv \end{array}$

Case 1

R-2 $\begin{array}{ccccc} \vdash & + & + & + & \dashv \\ E & B & C & A \end{array}$

R-1 $\begin{array}{cccc} & A & & B & E \\ \vdash & + & + & + & \end{array}$

Case 2

R-2 $\begin{array}{cccc} \vdash & + & + & + & \dashv \\ N & M & O & P \end{array}$

D is one of the persons. Hence, the final arrangement is: -

R-1
```
  Q   P   O   M   N
  ├───┼───┼───┼───┤
```

R-2
```
  ├───┼───┼───┼───┤
  E   B   C   A   D
```
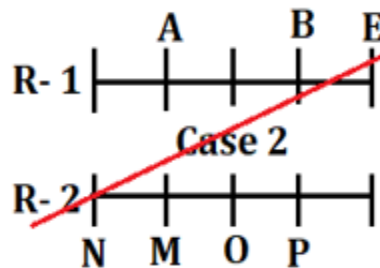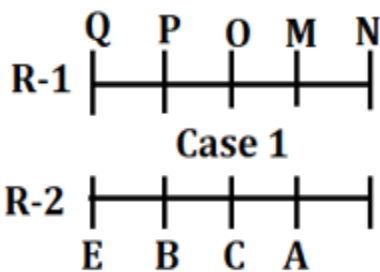
N sits opposite to D

S69. Ans.(b)
Sol. One person sits to the left of B.O sits immediate left of the person who faces B. There are two possible cases: -

R-1
```
        O
  ├───┼───┼───┤
```
Case 1
R-2
```
  ├───┼───┼───┤
      B
```

R-1
```
            B
  ├───┼───┼───┤
```
Case 2
R-2
```
  ├───┼───┼───┤
          O
```

M doesn't sit with B in the same row. A sits 3rd to the right of E and faces M.P sits 3rd to the right of N who doesn't face C. Q neither sit in row 2 nor with A, so case 2 is cancelled here: -

R-1
```
  Q   P   O   M   N
  ├───┼───┼───┼───┤
```
Case 1
R-2
```
  ├───┼───┼───┼───┤
  E   B   C   A
```

R-1
```
      A       B   E
  ├───┼───┼───┼───┤
```
Case 2
R-2
```
  ├───┼───┼───┼───┤
  N   M   O   P
```

D is one of the persons. Hence, the final arrangement is: -

R-1
```
  Q   P   O   M   N
  ├───┼───┼───┼───┤
```

R-2
```
  ├───┼───┼───┼───┤
  E   B   C   A   D
```
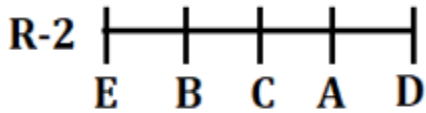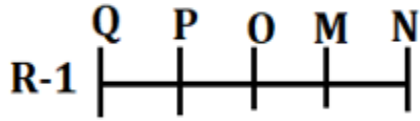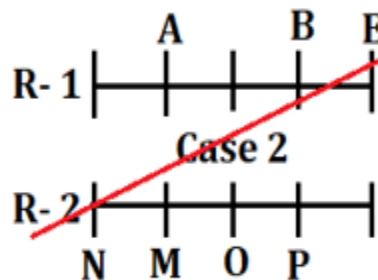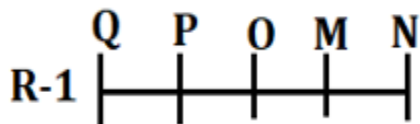
Two persons sit between Q and M.

S70. Ans.(d)
Sol. One person sits to the left of B.O sits immediate left of the person who faces B. There are two possible cases: -

O

R-1 ├──┼──┼──┤

Case 1

R-2 ├──┼──┼──┤
B

B

R- 1 ├──┼──┼──┤

Case 2

R- 2 ├──┼──┼──┤
O

M doesn't sit with B in the same row. A sits 3rd to the right of E and faces M.P sits 3rd to the right of N who doesn't face C. Q neither sit in row 2 nor with A, so case 2 is cancelled here: -
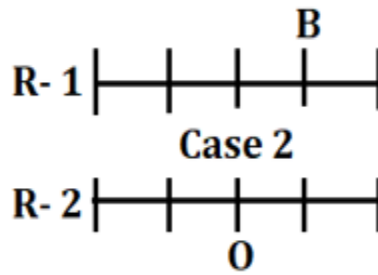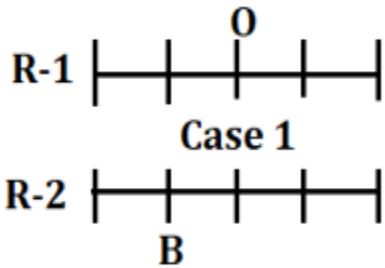
Q   P   O   M   N

R-1 ├──┼──┼──┼──┤

Case 1

R-2 ├──┼──┼──┼──┤
E   B   C   A

A   B   E

R- 1 ├──┼──┼──┼──┤

Case 2

R-2 ├──┼──┼──┼──┤
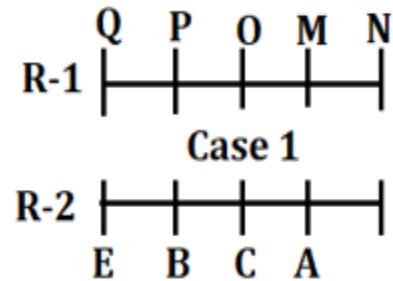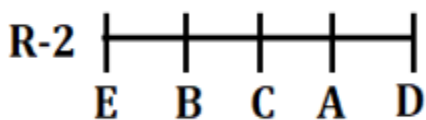**N   M   O   P**

D is one of the persons. Hence, the final arrangement is: -

Q   P   O   M   N

R-1 ├──┼──┼──┼──┤

R-2 ├──┼──┼──┼──┤
E   B   C   A   D
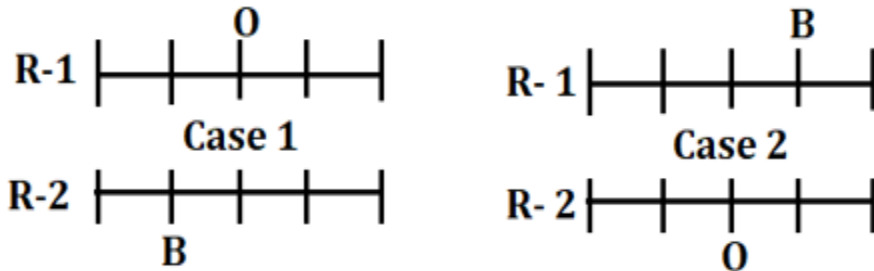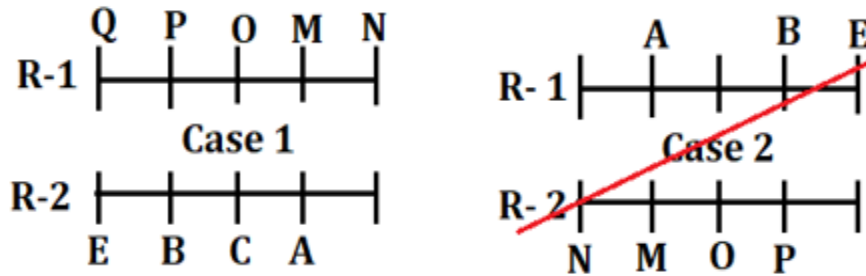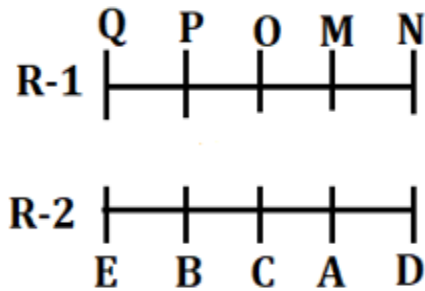
1st persons sit immediate right of the persons who sits opposite to the 2nd person.

S71. Ans.(d)
Sol.

Words	Codes
Another	nh
world	Ae/dr
change	Dr/ae
necessary	cy

S72. Ans.(d)
Sol.
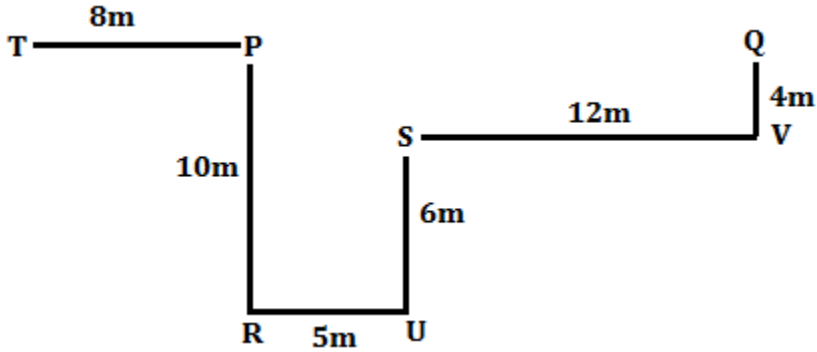
Plant T is in north west direction with respect to plant V.

S73. Ans.(c)
Sol.
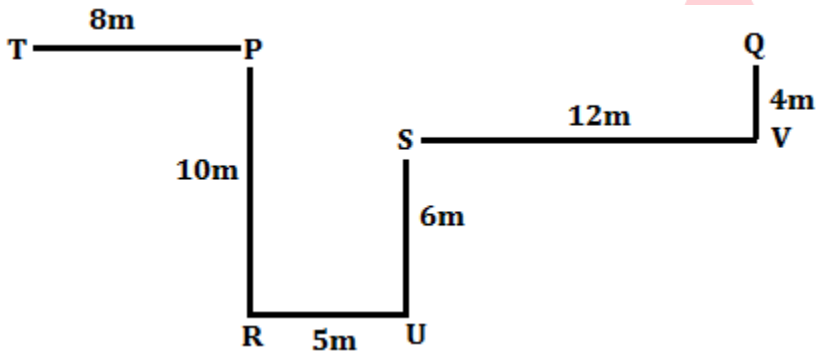
Distance between plant P and plant T= 8m
Distance between plant Q and plant V=4m
Sum= 8 + 4=12m

S74. Ans.(e)
Sol.
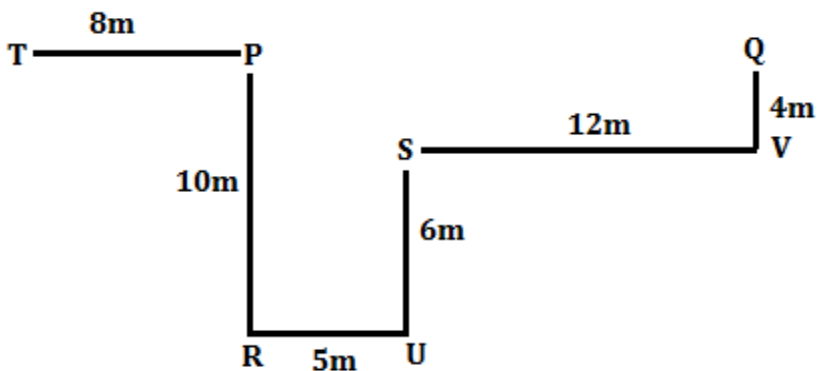
First plant is in south west direction with respect to second plant except in option e.

S75. Ans.(b)

Sol. Two floors gap between U and V who lives below U's floor. U lives on an odd numbered floor and lives just to the north- west of R. So, here we have two possible cases. R lives three floors above P. S lives on the same floor as P but not in flat A.

Floors	Case 1		Case 2	
	Flat A	Flat B	Flat A	Flat B
5	U		U	
4		R		R
3				
2	V			V
1	P	S	P	S

M lives on an even numbered floor and lives in the north- west N. N doesn't live on odd numbered floor. So, case 2 gets eliminated here.

| Floors	Case 1		~~Case 2~~	
	Flat A	Flat B	~~Flat A~~	~~Flat B~~
5	U		~~U~~	
4	M	R	~~M~~	~~R~~
3				~~N~~
2	V	N		~~V~~
1	P	S	~~P~~	~~S~~

Q lives below O in the same named flat as P. So, T is left only and lives on floor 3 in flat B. Thus, the final arrangement is:

Floors	Flat A	Flat B
5	U	O
4	M	R
3	Q	T
2	V	N
1	P	S

T lives on floor 3 in flat B.

S76. Ans.(c)

Sol. Two floors gap between U and V who lives below U's floor. U lives on an odd numbered floor and lives just to the north- west of R. So, here we have two possible cases. R lives three floors above P. S lives on the same floor as P but not in flat A.

Floors	Case 1		Case 2	
	Flat A	Flat B	Flat A	Flat B
5	U		U	
4		R		R
3				
2	V			V
1	P	S	P	S

M lives on an even numbered floor and lives in the north- west N. N doesn't live on odd numbered floor. So, case 2 gets eliminated here.

Floors	Case 1		Case 2	
	Flat A	Flat B	Flat A	Flat B
5	U		U	
4	M	R	M	R
3				N
2	V	N		V
1	P	S	P	S

Q lives below O in the same named flat as P. So, T is left only and lives on floor 3 in flat B. Thus, the final arrangement is:

Floors		
	Flat A	Flat B
5	U	O
4	M	R
3	Q	T
2	V	N
1	P	S

Only statement II is not true.

S77. Ans.(e)
Sol. Two floors gap between U and V who lives below U's floor. U lives on an odd numbered floor and lives just to the north- west of R. So, here we have two possible cases. R lives three floors above P. S lives on the same floor as P but not in flat A.

Floors	Case 1		Case 2	
	Flat A	Flat B	Flat A	Flat B
5	U		U	
4		R		R
3				
2	V			V
1	P	S	P	S

M lives on an even numbered floor and lives in the north- west N. N doesn't live on odd numbered floor. So, case 2 gets eliminated here.

Floors	Case 1		Case 2	
	Flat A	Flat B	Flat A	Flat B
5	U		U	
4	M	R	M	R
3				N
2	V	N		V
1	P	S	P	S

Q lives below O in the same named flat as P. So, T is left only and lives on floor 3 in flat B. Thus, the final arrangement is:

Floors	Flat A	Flat B
5	U	O
4	M	R
3	Q	T
2	V	N
1	P	S

Except M, all of them live on an odd numbered floor.

S78. Ans.(c)
Sol. Two floors gap between U and V who lives below U's floor. U lives on an odd numbered floor and lives just to the north- west of R. So, here we have two possible cases. R lives three floors above P. S lives on the same floor as P but not in flat A.

Floors	Case 1		Case 2	
	Flat A	Flat B	Flat A	Flat B
5	U		U	
4		R		R
3				
2	V			V
1	P	S	P	S

M lives on an even numbered floor and lives in the north- west N. N doesn't live on odd numbered floor. So, case 2 gets eliminated here.

Floors	Case 1		Case 2	
	Flat A	Flat B	Flat A	Flat B
5	U		U	
4	M	R	M	R
3				N
2	V	N		V
1	P	S	P	S

Q lives below O in the same named flat as P. So, T is left only and lives on floor 3 in flat B. Thus, the final arrangement is:

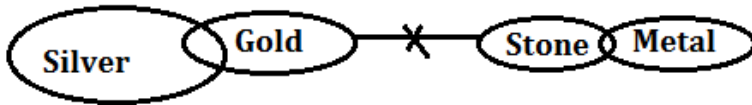| Floors	Flat A	Flat B
5	U	O
4	M	R
3	Q	T
2	V	N
1	P	S

Three floors are there between U and S.

S79. Ans.(b)
Sol. I doesn't follow: Some silver which is gold can't be stone. So, all silver can't be stone even in case of possibility.
II follows: Some metal which is stone can't be gold. So, it follows.

S80. Ans.(e)
Sol. I follows: Triangle is only related to square and with other elements it has no relation.
II follows: Some rhombus is not sphere. So, all rhombus can't be sphere.
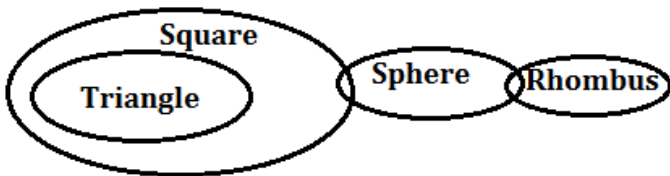
S81. Ans.(a)
Sol. I follows: There is no direct relation between bread and cookies so, in case of possibility relation between them exist.
II doesn't follow: There is no direct relation between bread and cake. So, it doesn't follow.
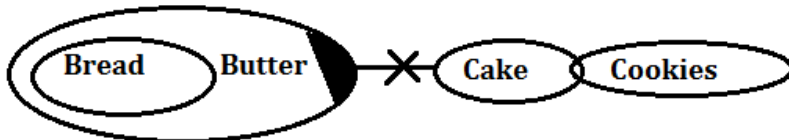
S82. Ans.(d)
Sol. I doesn't follow: There is no direct relation between trouser and skirt so, I doesn't follow.
II doesn't follow: There is no direct relation between trouser and skirt so, II doesn't follow.

S83. Ans.(c)
Sol. I doesn't follow: There is no direct relation between car and bus so, I doesn't follow.
II doesn't follow: There is no direct relation between car and bus so, II doesn't follow.
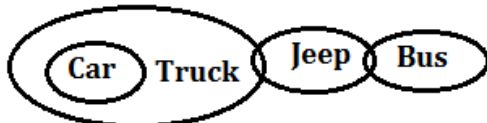
S84. Ans.(d)

Sol. T is brother- in –law of M who is daughter-in-law of J. So, here we have two possible cases. U is father of S who is only daughter of M.

Case 1

J
|
T ══(-)── M(-) ══(+) U
|
S(-)

Case 2

J
|
M(-) ══(+) U ── T(+)
|
S(-)

J has only two children. T is paternal uncle of H. J is brother-in-law of E and has no siblings. So, case 1 gets eliminated here.

Case 1

J
|
T ══(-)── M(-) ══(+) U
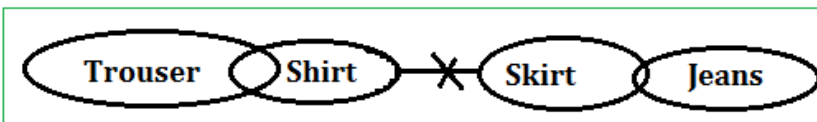|
S(-)

Case 2

(+)J ══ (-) ── E
|
M(-) ══(+) U ── T(+)
|
S(-) ──── H(+)

E is brother of R. Thus, the final arrangement is:

(+)J ══ R(-) ── E(+)
|
M(-) ══(+) U ── T(+)
|
S(-) ──── H(+)

R is grandmother of H.

S85. Ans.(b)

Sol. T is brother- in –law of M who is daughter-in-law of J. So, here we have two possible cases. U is father of S who is only daughter of M.

Case 1

J
|
T ══ (-) ── M(-) ══ (+) U
|
S(-)

Case 2

J
|
M(-) ══ (+) U ── T(+)
|
S(-)

J has only two children. T is paternal uncle of H. J is brother-in-law of E and has no siblings. So, case 1 gets eliminated here.

Case 1

J
|
T ══ (-) ── M(-) ══ (+) U
|
S(-)

Case 2

(+)J ══ (-) ── E
|
M(-) ══ (+) U ── T(+)
|
S(-) ── H(+)

E is brother of R. Thus, the final arrangement is:

(+)J ══ R(-) ── E(+)
|
M(-) ══ (+) U ── T(+)
|
S(-) ── H(+)

Both I and II statements are true.

S86. Ans.(c)
Sol. T is brother- in –law of M who is daughter-in-law of J. So, here we have two possible cases. U is father of S who is only daughter of M.
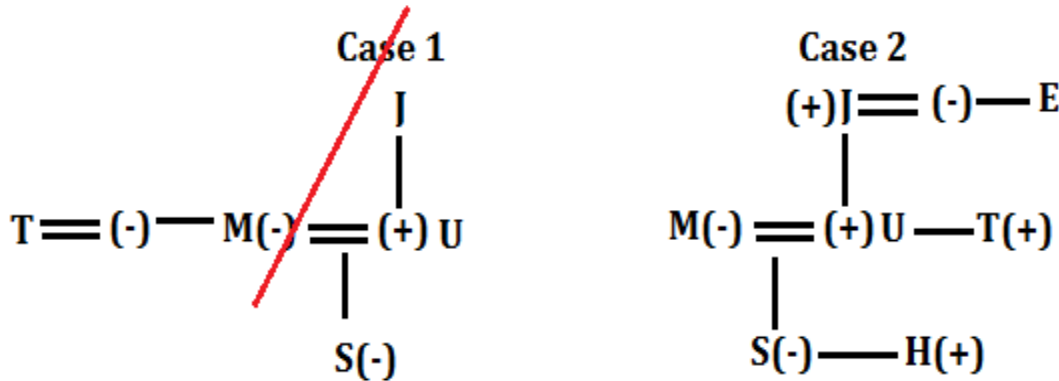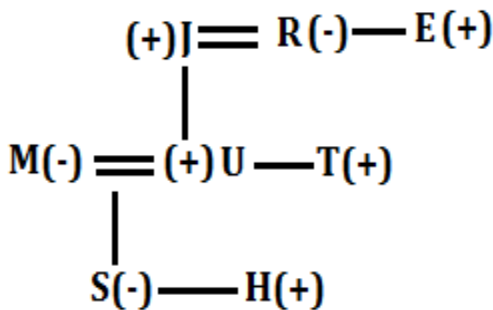
Case 1

J
|
T ══ (-) ── M(-) ══ (+) U
|
S(-)

Case 2

J
|
M(-) ══ (+) U ── T(+)
|
S(-)
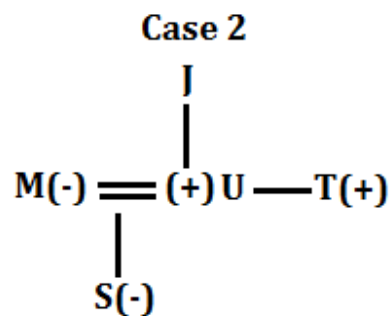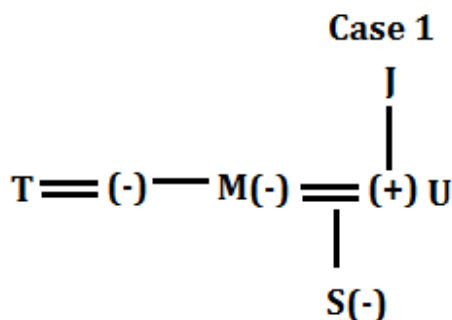
J has only two children. T is paternal uncle of H. J is brother-in-law of E and has no siblings. So, case 1 gets eliminated here.

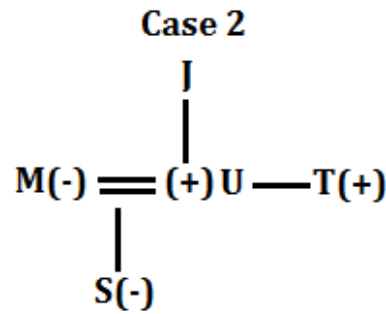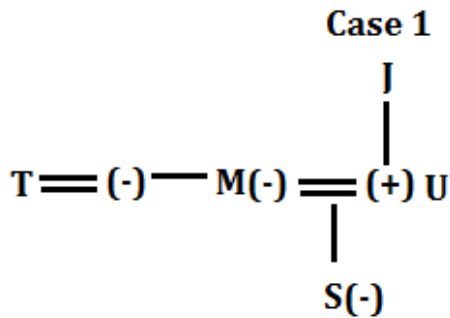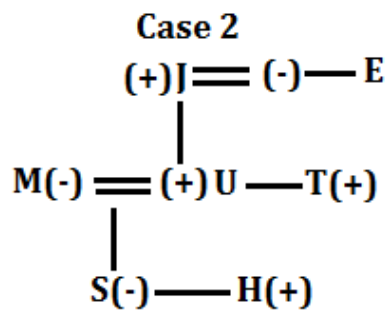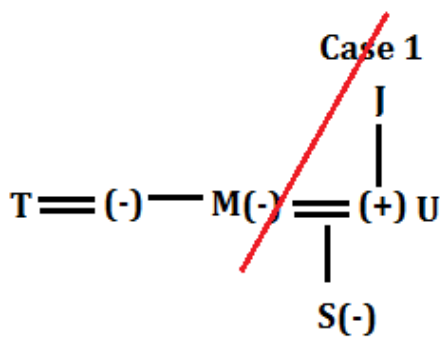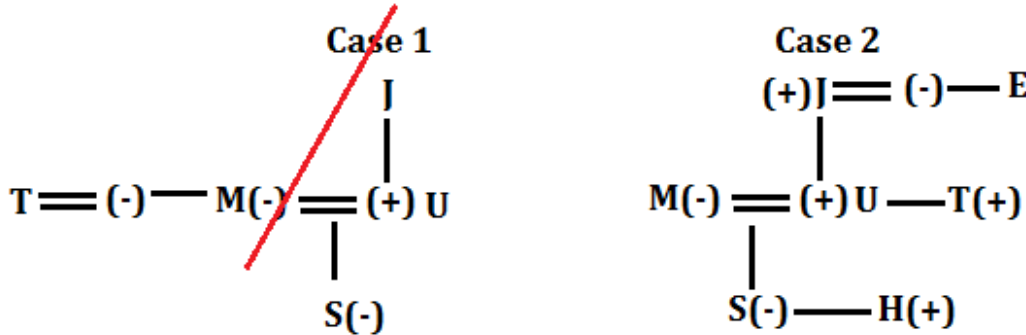E is brother of R. Thus, the final arrangement is:
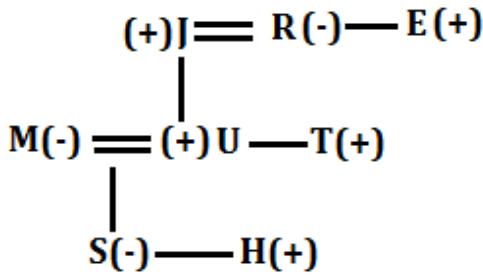
Two married couples are in the family.

S87. Ans.(c)
Sol. E gets more chocolates than at most two persons. So, here we have three possible cases.
Case 1: __ > ___ > ___ > ___ > ___ > ___ > E
Case 2: __ > ___ > ___ > ___ > ___ > E > __
Case 3: ___ > __ > ___ > ___ > E > ___ > ___
Two persons get chocolates between E and G. E gets more chocolates than K and just less chocolates than M. So, case 1 gets eliminated here.
~~Case 1: __ > ___ > ___ > G > ___ > ___ > E~~
Case 2: __ > ___ > G > ___ > M > E > K
Case 3: ___ > G > ___ > M > E > _K/_ > _K/_

The number of persons gets more chocolates than K is same as the number of persons gets less chocolates than G. So, case 2 gets eliminated here. E has 3 chocolates less than J who has chocolates which is equal to the smallest two-digit number. So, it is clear that J has 10 chocolates (10 is smallest two-digit number) and E has 7 chocolates. J gets more chocolates than L but doesn't get the highest number of chocolates.
~~Case 2: __ > ___ > G > ___ > M > E > K~~
Case 3: ___ > G > J(10) > M > E (7) > K > L

D gets 6 chocolates more than E which means D gets 13 chocolates. Thus, the final arrangement is:
D(13) > G > J(10) > M > E (7) > K > L
D(13)+J(10)+E(7)=30

S88. Ans.(e)
Sol. E gets more chocolates than at most two persons. So, here we have three possible cases.
Case 1: __ > ___ > ___ > ___ > ___ > ___ > E
Case 2: __ > ___ > ___ > ___ > ____ > E > __
Case 3: ___ > __ > ___ > ____ > E > ___ > ___
Two persons get chocolates between E and G. E gets more chocolates than K and just less chocolates than M. So, case 1 gets eliminated here.

Case 1: __ > ___ > ___ > G > ___ > ___ > E
Case 2: __ > ___ > G > ___ > M > E > K
Case 3: ___ > G > ___ > M > E > _K/_ > _K/_

The number of persons gets more chocolates than K is same as the number of persons gets less chocolates than G. So, case 2 gets eliminated here. E has 3 chocolates less than J who has chocolates which is equal to the smallest two-digit number. So, it is clear that J has 10 chocolates (10 is smallest two-digit number) and E has 7 chocolates. J gets more chocolates than L but doesn't get the highest number of chocolates.

Case 2: __ > ___ > G > ___ > M > E > K
Case 3: ___ > G > J(10) > M > E (7) > K > L

D gets 6 chocolates more than E which means D gets 13 chocolates. Thus, the final arrangement is:
D(13) > G > J(10) > M > E (7) > K > L
Six persons get less chocolates than the one who gets just more chocolates than G (D gets just more chocolates than G).

S89. Ans.(c)
Sol. E gets more chocolates than at most two persons. So, here we have three possible cases.
Case 1: __ > ___ > ___ > ___ > ___ > ___ > E
Case 2: __ > ___ > ___ > ___ > ____ > E > __
Case 3: ___ > __ > ___ > ____ > E > ___ > ___
Two persons get chocolates between E and G. E gets more chocolates than K and just less chocolates than M. So, case 1 gets eliminated here.

Case 1: __ > ___ > ___ > G > ___ > ___ > E
Case 2: __ > ___ > G > ___ > M > E > K
Case 3: ___ > G > ___ > M > E > _K/_ > _K/_

The number of persons gets more chocolates than K is same as the number of persons gets less chocolates than G. So, case 2 gets eliminated here. E has 3 chocolates less than J who has chocolates which is equal to the smallest two-digit number. So, it is clear that J has 10 chocolates (10 is smallest two-digit number) and E has 7 chocolates. J gets more chocolates than L but doesn't get the highest number of chocolates.

Case 2: __ > ___ > G > ___ > M > E > K
Case 3: ___ > G > J(10) > M > E (7) > K > L

D gets 6 chocolates more than E which means D gets 13 chocolates. Thus, the final arrangement is:
D(13) > G > J(10) > M > E (7) > K > L
9 possible number of chocolates does M get.

S90. Ans.(e)
Sol. Meaningful words formed by using letters I, C, O and N = COIN and ICON

S91. Ans.(c)
Sol. No one was born between R and P who was born in the month having minimum number of days. Three persons were born between R and U. There are two possible cases: -

Months	Persons Case 1	Persons Case 2
January	R	
February	P	P
March		R
April		
May	U	
June		
July		U
August		

Three persons were born between Q and V who was born just after S. Consecutive named person as per the alphabetical series were not born in adjacent month. Here, one more possibility arise from case 1 and case 2 is ruled out here: -

Months	Persons Case 1	~~Persons Case 2~~
January	R	
February	P	~~P~~
March		~~R~~
April	Q	
May	U	
June		
July	S	~~U~~
August	V	

Consecutive named person as per the alphabetical series were not born in adjacent month, so T was born in March and W in June and the final arrangement: -

Months	Persons
January	R
February	P
March	T
April	Q
May	U
June	W
July	S
August	V

Four persons were born between R and W.

S92. Ans.(d)

Sol. No one was born between R and P who was born in the month having minimum number of days. Three persons were born between R and U. There are two possible cases: -

Months	Persons Case 1	Persons Case 2
January	R	
February	P	P
March		R
April		
May	U	
June		
July		U
August		

Three persons were born between Q and V who was born just after S. Consecutive named person as per the alphabetical series were not born in adjacent month. Here, one more possibility arise from case 1 and case 2 is ruled out here: -

Months	Persons Case 1	~~Persons Case 2~~
January	R	
February	P	~~P~~
March		~~R~~
April	Q	
May	U	
June		
July	S	~~U~~
August	V	

Consecutive named person as per the alphabetical series were not born in adjacent month, so T was born in March and W in June and the final arrangement: -

Months	Persons
January	R
February	P
March	T
April	Q
May	U
June	W
July	S
August	V

W was born in June.

S93. Ans.(c)

Sol. No one was born between R and P who was born in the month having minimum number of days. Three persons were born between R and U. There are two possible cases: -

Months	Persons	Persons
	Case 1	Case 2
January	R	
February	P	P
March		R
April		
May	U	
June		
July		U
August		

Three persons were born between Q and V who was born just after S. Consecutive named person as per the alphabetical series were not born in adjacent month. Here, one more possibility arise from case 1 and case 2 is ruled out here: -

Months	Persons	~~Persons~~
	Case 1	~~Case 2~~
January	R	
February	P	~~P~~
March		~~R~~
April	Q	
May	U	
June		
July	S	~~U~~
August	V	

Consecutive named person as per the alphabetical series were not born in adjacent month, so T was born in March and W in June and the final arrangement: -

Months	Persons
January	R
February	P
March	T
April	Q
May	U
June	W
July	S
August	V

All the persons except Q were born in the month having 31 days.

S94. Ans.(b)

Sol. No one was born between R and P who was born in the month having minimum number of days. Three persons were born between R and U. There are two possible cases: -

Months	Persons Case 1	Persons Case 2
January	R	
February	P	P
March		R
April		
May	U	
June		
July		U
August		

Three persons were born between Q and V who was born just after S. Consecutive named person as per the alphabetical series were not born in adjacent month. Here, one more possibility arise from case 1 and case 2 is ruled out here: -

Months	Persons Case 1	~~Persons Case 2~~
January	R	
February	P	~~P~~
March		~~R~~
April	Q	
May	U	
June		
July	S	~~U~~
August	V	

Consecutive named person as per the alphabetical series were not born in adjacent month, so T was born in March and W in June and the final arrangement: -

Months	Persons
January	R
February	P
March	T
April	Q
May	U
June	W
July	S
August	V

W was born just before S.

S95. Ans.(e)
Sol. No one was born between R and P who was born in the month having minimum number of days. Three persons were born between R and U. There are two possible cases: -

Months	Persons Case 1	Persons Case 2
January	R	
February	P	P
March		R
April		
May	U	
June		
July		U
August		

Three persons were born between Q and V who was born just after S. Consecutive named person as per the alphabetical series were not born in adjacent month. Here, one more possibility arise from case 1 and case 2 is ruled out here: -

Months	Persons Case 1	~~Persons Case 2~~
January	R	
February	P	~~P~~
March		~~R~~
April	Q	
May	U	
June		
July	S	~~U~~
August	V	

Consecutive named person as per the alphabetical series were not born in adjacent month, so T was born in March and W in June and the final arrangement: -

Months	Persons
January	R
February	P
March	T
April	Q
May	U
June	W
July	S
August	V

V was born in August.

S96. Ans.(e)
Sol.

S I M P L I F I C A T E

S97. Ans.(c)
Sol. A and M likes same subject but not English. Y likes Economics. There are two possible cases as they may like Sociology or Economics: -

Sociology	Economics	English	Sociology	Economics	English
Case 1			Case 2		
A	Y			A	
M				M	
				Y	

B likes a subject only with R. O and P like same subject same as the Y likes, so case 2 is cancelled here because it is given that Not less than two persons and not more than four persons like same subject.

Sociology	Economics	English	~~Sociology~~	~~Economics~~	~~English~~
Case 1			~~Case 2~~		
A	Y	B	~~B/~~	A	~~B/~~
M	O	R	~~R/~~	M	~~R/~~
	P			~~Y~~	

Z and U likes same subject, so they will like Sociology because of the given condition i.e., Not less than two persons and not more than four persons like same subject. Thus, the final arrangement is: -

Sociology	Economics	English
A	P	B
Z	O	R
U	Y	
M		

O likes Economics.

S98. Ans.(d)
Sol. A and M likes same subject but not English. Y likes Economics. There are two possible cases as they may like Sociology or Economics: -

Sociology	Economics	English	Sociology	Economics	English
Case 1			Case 2		
A	Y			A	
M				M	
				Y	

B likes a subject only with R. O and P like same subject same as the Y likes, so case 2 is cancelled here because it is given that Not less than two persons and not more than four persons like same subject.

Sociology	Economics	English	~~Sociology~~	~~Economics~~	~~English~~
Case 1			~~Case 2~~		
A	Y	B	~~B/~~	A	~~B/~~
M	O	R	~~R/~~	M	~~R/~~
	P			~~Y~~	

Z and U likes same subject, so they will like Sociology because of the given condition i.e., Not less than two persons and not more than four persons like same subject. Thus, the final arrangement is: -

Sociology	Economics	English
A	P	B
Z	O	R
U	Y	
M		

Both B and R like English.

S99. Ans.(b)
Sol. A and M likes same subject but not English. Y likes Economics. There are two possible cases as they may like Sociology or Economics: -

Sociology	Economics	English	Sociology	Economics	English
Case 1			Case 2		
A	Y			A	
M				M	
				Y	

B likes a subject only with R. O and P like same subject same as the Y likes, so case 2 is cancelled here because it is given that Not less than two persons and not more than four persons like same subject.

Sociology	Economics	English	~~Sociology~~	~~Economics~~	~~English~~
Case 1			~~Case 2~~		
A	Y	B	~~B/~~	A	~~B/~~
M	O	R	~~R/~~	M	~~R/~~
	P			~~Y~~	

Z and U likes same subject, so they will like Sociology because of the given condition i.e., Not less than two

persons and not more than four persons like same subject. Thus, the final arrangement is: -

Sociology	Economics	English
A	P	B
Z	O	R
U	Y	
M		

A and U like same subject i.e., Sociology.

S100. Ans.(a)
Sol. A and M likes same subject but not English. Y likes Economics. There are two possible cases as they may like Sociology or Economics: -

Sociology	Economics	English	Sociology	Economics	English
	Case 1			Case 2	
A	Y			A	
M				M	
				Y	

B likes a subject only with R. O and P like same subject same as the Y likes, so case 2 is cancelled here because it is given that Not less than two persons and not more than four persons like same subject.

Sociology	Economics	English	~~Sociology~~	~~Economics~~	~~English~~
	Case 1			~~Case 2~~	
A	Y	B	~~B⁄~~	A	~~B⁄~~
M	O	R	~~R⁄~~	M	~~R⁄~~
	P			~~Y~~	

Z and U likes same subject, so they will like Sociology because of the given condition i.e., Not less than two persons and not more than four persons like same subject. Thus, the final arrangement is: -

Sociology	Economics	English
A	P	B
Z	O	R
U	Y	
M		

"O-English" combination is not true.