

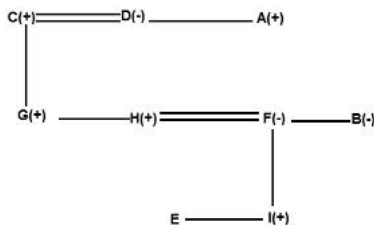
**SBI PO MAINS GRAND TEST – SPM180702**

**ANSWER KEY**

1. (4)	21. (4)	41. (4)	61. (2)	81. (2)	101. (4)	121. (2)	141. (2)
2. (4)	22. (5)	42. (2)	62. (1)	82. (4)	102. (4)	122. (3)	142. (3)
3. (4)	23. (5)	43. (4)	63. (3)	83. (4)	103. (5)	123. (4)	143. (1)
4. (4)	24. (1)	44. (3)	64. (4)	84. (4)	104. (1)	124. (2)	144. (1)
5. (3)	25. (3)	45. (1)	65. (2)	85. (3)	105. (5)	125. (2)	145. (2)
6. (5)	26. (1)	46. (3)	66. (3)	86. (3)	106. (2)	126. (4)	146. (3)
7. (3)	27. (3)	47. (1)	67. (2)	87. (3)	107.(3)	127. (4)	147. (3)
8. (1)	28. (5)	48. (2)	68. (4)	88. (2)	108. (5)	128. (2)	148. (3)
9. (2)	29. (3)	49. (1)	69. (2)	89. (4)	109. (3)	129. (4)	149. (5)
10. (1)	30. (3)	50. (2)	70. (4)	90. (4)	110. (4)	130. (4)	150. (5)
11. (5)	31. (5)	51. (3)	71. (4)	91. (4)	111. (1)	131. (2)	151. (1)
12. (1)	32. (4)	52. (5)	72. (3)	92. (5)	112. (2)	132. (3)	152.(5)
13. (4)	33. (2)	53. (2)	73. (3)	93. (2)	113. (5)	133. (4)	153. (2)
14. (3)	34. (3)	54. (4)	74. (2)	94. (4)	114. (4)	134. (5)	154. (5)
15. (5)	35. (4)	55. (2)	75. (1)	95. (3)	115. (1)	135. (3)	155. (4)
16. (2)	36. (3)	56. (4)	76. (3)	96. (4)	116. (4)	136. (5)	
17. (4)	37. (4)	57. (3)	77. (1)	97. (4)	117. (3)	137. (3)	
18. (3)	38. (4)	58. (3)	78. (3)	98. (3)	118. (2)	138. (4)	
19. (5)	39. (3)	59. (2)	79. (1)	99. (3)	119. (3)	139. (3)	
20. (5)	40. (4)	60. (1)	80. (4)	100. (4)	120. (2)	140. (1)	

**HINTS & SOLUTIONS**

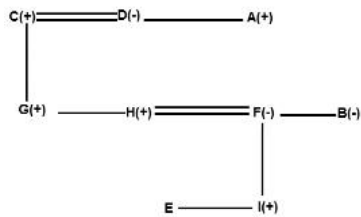
1-5. **Step 1.** We will first determine the blood relation tree from the following information given in the question, F is the wife of H and she has only two children. C is the father of G, who is the uncle of E. E’s maternal aunt does not live on the eight and first floor. E’s grandmother lives with T and E’s uncle lives with S. B is the sister-in-law of H. E’s grandmother has one brother. I is the brother of E. D is the mother of H. F’s father-in-law lives with X on the sixth floor. Brother of H is twice as old as E.



**Step 2.** Proceeding with the remaining information, T lives on the fifth floor. I lives on the ninth floor with R. E’s brother is 10 year old. A Singh member who lives on seventh floor is 24 years old. A is twice as old as the Singh member living on the seventh floor. The one who lives on the third floor with V is 43 year old. U lives on the first floor. F’s father in law i.e. C lives on the sixth floor with X. B lives with Y. D’s husband’s brother-in-law lives with Z. S

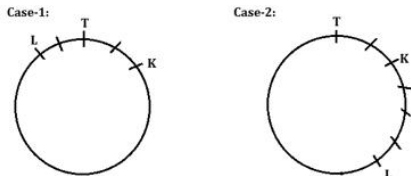
lives on second floor with the person who is 50 years old. E’s uncle i.e. G lives with S. E’s grandmother i.e. D lives with T. The Singh member who is one years older than B lives on fourth floor, it means B do not live on fourth floor. E’s maternal aunt i.e. B does not live on the eight and first floor. It means B lives on the seventh floor with Y and the one who lives on the fourth floor is 25 years old. A is 48 years old it means A and Z lives on eighth floor. F is not the oldest person in the Singh family. It means either C or D is the oldest. D is two years younger than his family member living on sixth floor. It means C is 72 years old and D is 70 years old. E lives on an even numbered floor. U does not lives with F, it means F lives with V and U lives with H. W lives between F and E’s grandmother. And F does not live below G. So we have our final solution as,

Floor	Singh	Age(Singh)	Khan
9	I	10	R
8	A	48	Z
7	B	24	Y
6	C	72	X
5	D	70	T
4	E	25	W
3	F	43	V
2	G	50	S
1	H		U

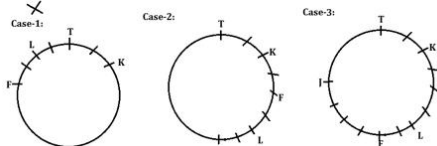


- 1. (4)
- 2. (4)
- 3. (4)
- 4. (4)
- 5. (3)

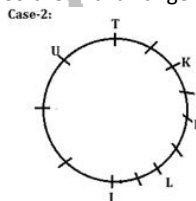
6-8. K sits second to the left of T. Three persons are sitting between K and L. So, from this there can be two possible cases-----



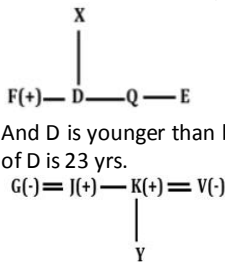
Only one person sit between L and F. J sits fourth to the left of F. As there is no place left for J so case-1 will be eliminated. So, the following possible cases are shown-----



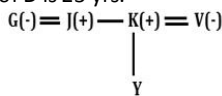
Only two persons sit between J and U who is an immediate neighbour of T but not of K. Less than 15 persons are sitting around the table. So, from this case-3 will be eliminated as 16 persons are sitting around the table in that case. So the final arrangement is-----



- 6. (5)
- 7. (3)
- 8. (1)
- 9. (2)



And D is younger than both E and Q. So, the probable age of D is 23 yrs.



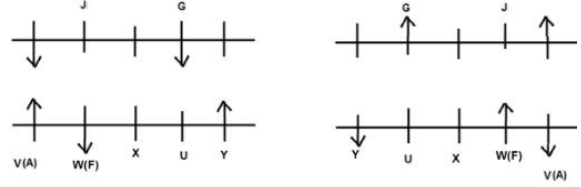
10. (1) And V is younger than C.

11-15. **Step 1.** From the information given in the question, The player from A is sitting at the extreme end. U sits third to the right of V. V belongs to A. J sits immediate left of the person, who sits opposite to V. Only one person sits between J and G.

W, who is the oldest is not an immediate neighbour of U. It means W sits to the immediate right of V. K is the fifth youngest person. G was born in Jan. It means G was born on 29th Jan. The one who sits second to the right of G is the youngest. It means J is the youngest. Y sits third to the

left of W. Y faces opposite direction to W who belongs to F. It means X is sitting between W and U.

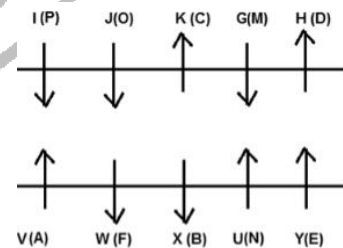
So we have,



Case 1 Case 2

Month ↓ / Day →	13th	29th
Jan	W	G
Feb		
Mar		K
Apr		
May		J

**Step 2.** Proceeding with the remaining information, H is to the immediate left of G. K sits second to the left of H who belongs to D. J sits to the immediate left of K. K belongs to C. The one who belongs to B sits opposite to K. It means X belongs to B. U and his immediate neighbor were born in the same month. U is older than X who is older than Y. The number of persons born between H and X is the same as the number of persons born between U and G. H was not born in March. V was not born in the month which has 31 days. It means H was born on 13th Feb. V was born on 29th Feb and I was born on 13th March. The fifth oldest person is facing south. It means our case 2 will be eliminated. J and U face opposite directions. Y is to the immediate right of U. The one who belongs to O is sitting to the right of the one who belongs to M. The persons who belongs to P and E are sitting diagonally opposite to each other. The one who belongs to P is older than Y. It means Y belongs to E and I belongs to P. The one who belongs to N sits in Row-2. It means U belongs to N. So we have our final solution as,



Month ↓ / Day →	13th	29th
Jan	W	G
Feb	H	V
Mar	I	K
Apr	U	X
May	Y	J

- 11. (5)
  - 12. (1)
  - 13. (4)
  - 14. (3)
  - 15. (5)
- 16-20. Q attends the meeting on an odd date of a month which has 30 days. Only three persons attend meeting in between Q and S who attends the meeting at A. Y attends

the meeting at G and immediately before S. Only two persons attend meeting in between those who attend meeting at A and H. From this there can be three possible cases-

Case-1:

Months (Days)↓/Dates→	10 <sup>th</sup>	27 <sup>th</sup>
January (31)	Y (G)	S (A)
March (31)		
April (30)	(H)	Q
May (31)		
June (30)		

Case-2:

Months (Days)↓/Dates→	10 <sup>th</sup>	27 <sup>th</sup>
January (31)		
March (31)		
April (30)		Q
May (31)	(H)	
June (30)	Y (G)	S (A)

Case-3:

Months (Days)↓/Dates→	10 <sup>th</sup>	27 <sup>th</sup>
January (31)		
March (31)	(H)/	
April (30)	Y (G)	S (A)
May (31)		
June (30)	(H)/	Q

The meeting is not held in a month having 31 days at H. So, from this case-2 will be eliminated. Now, with Case-1 and case-3, The meeting held at B immediately after H. Two meetings held in between the one held at B and the one held at I.

Case-1

Months (Days)↓/Dates→	10 <sup>th</sup>	27 <sup>th</sup>
January (31)	Y (G)	S (A)
March (31)	(I)/	
April (30)	(H)	Q (B)
May (31)		
June (30)	(I)/	

Case-3:

Months (Days)↓/Dates→	10 <sup>th</sup>	27 <sup>th</sup>
January (31)		
March (31)		
April (30)	Y (G)	S (A)
May (31)	(I)	
June (30)	(H)	Q(B)

Only one meeting held between the one held at I and the one held at F. So, from this case-3 will be eliminated as there is no place left for Place F. Now, with case-1, Both P and X attend the meeting on an even date of a month having 31 days but P attends the meeting before X. So, P attends meeting on 10th March and X at 10th May. Both R and T attend the meeting in the same month.

Months (Days)↓/Dates→	10 <sup>th</sup>	27 <sup>th</sup>
January (31)	Y (G)	S (A)
March (31)	P	
April (30)	(H)	Q (B)
May (31)	X (F)	
June (30)	R/T(I)	R/T

U attend the meeting before V but after W. More than two meeting held between the one held at F and the one held at E.

Months (Days)↓/Dates→	10 <sup>th</sup>	27 <sup>th</sup>
January (31)	Y (G)	S (A)
March (31)	P (E)	W
April (30)	U (H)	Q (B)
May (31)	X (F)	V
June (30)	R/T(I)	R/T

W does not attend meeting at D and V does not attend meeting at J. Both T and W attend the meeting on same date. Meeting at place C held in a month having 30 days. So, the final arrangement is-----

Months (Days)↓/Dates→	10 <sup>th</sup>	27 <sup>th</sup>
January (31)	Y (G)	S (A)
March (31)	P (E)	W (J)
April (30)	U (H)	Q (B)
May (31)	X (F)	V (D)
June (30)	R (I)	T (C)

16. (2)

17. (4)

18. (3)

19. (5)

20. (5)

21. (4)

Statement (i) cannot be inferred as nothing relating to the TRP is mentioned in the statement.

Statement (ii) cannot be inferred as the statement is only concerned with the bias of media executives and journalists towards a particular party which does not necessarily mean that the ruling party is involved in it.

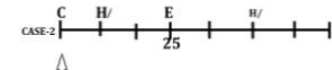
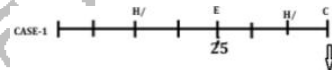
The fact that some of the senior media executives and journalists were willing to take money in return for pushing a political agenda clearly points to their corrupt intentions. So statement (iii) can be inferred.

22. (5)

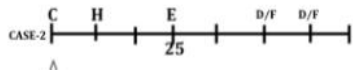
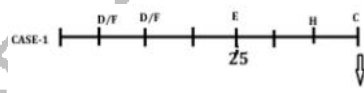
It is not appropriate to ban all the imports from country B which might include some essential commodities so (1) not correct. Option (2) is not appropriate as implementing heavy taxes might reduce the consumption of beer imported from country B but the consumption by even one person can be dangerous to him. Similarly we don't know the quantity of beer consumed by people who fell sick after drinking the beer imported from country B so (3) is not appropriate. Option (4) is irrelevant as nothing has been mention in the statement about the imports from country A. Option (5) will be most effective as a corrective and preventive measure.

23-25.

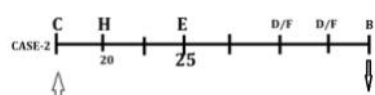
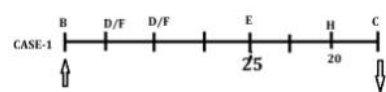
E sits third to the right of C and his age is a square of 5. C sits at one of the extreme end of the row. Only one person sit between E and H.



Neither D nor F sits at an extreme end. F sits to the immediate left of D and also faces same direction as D. From the given condition we get that H is an immediate neighbour of C.

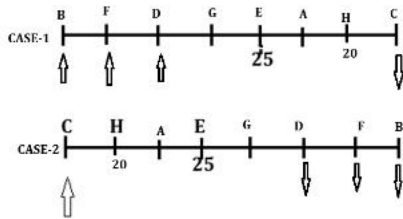


H's age is 4/5th of the age of E. B is not an immediate neighbour of E and faces opposite direction as C. So, clearly B sits at the other end and faces opposite direction of C.

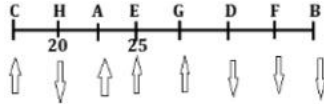


Now, we know that the only place left for G is between E and D and F will sit to the immediate right of B. F sits to the immediate left of D and also faces same direction as D. So, F and D face North direction in case-1 and face South in case-2. Rest A sits in between H and E.

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A sits to the left of the H but H does not face North. So, from this case-1 will be eliminated. Now Both G and E are facing same direction to each other but opposite direction to B. A faces same direction as E. So, the final arrangement is---



Case-2:

Boxes	Colour
F	Red
2 <sup>nd</sup> largest	
D	Blue
B	

The arrangement according to the size of boxes is----  
 $\_ > \_ > \_ > \_ > E > F$

Only two boxes are placed between box F and A. Box B is larger than Pink box which is larger than Red box. So, B is of white color and box E is of Pink Color. Only three boxes are placed in between largest box and third smallest box but the largest box is placed below the third smallest box. So, from this we get that Case-1a and case-2 will be eliminated as there is no place left for largest box which is box C. So the final arrangement is----

Boxes	Color
F	Red
B	White
E	Pink
A	Black
D	Blue
C	Purple

Arrangement according to size to the boxes is-----  
 $C > A > D > B > E > F$

23. (5)

24. (1)

25. (3)

26. (1)

Only I weakens the given statements as the statement suggest that the today's children are weaker than previous generation and are not as much active and also lack in developing their personality whereas the statement I states that today's children are mentally more active so it weakens the given statement.

27-29.

Two boxes are placed in between box B and box D which is of Blue color. The second largest box is placed immediately above box D. From this there can be two possible cases----

Case-1:

Boxes	Colour
B	
2 <sup>nd</sup> largest	
D	Blue

Case-2:

Boxes	Colour
2 <sup>nd</sup> largest	
D	Blue
B	

Only one box is smaller than box E. So, from this it is clear that E is the 2<sup>nd</sup> smallest box. Further Box C is of Purple color. Black box is larger than White box but smaller than Purple box. Box F is neither of White color nor of black colour. Box B is not of Black color. Box B is larger than Pink box which is larger than Red box. So, from these conditions we get that either A or F is the smallest box. But we know that only F can be of Red color. From this we get that F is the smallest box and it is of Red color. The smallest box is placed at the top. So, three possible cases are shown below-----

Case-1a:

Boxes	Colour
F	Red
B	
2 <sup>nd</sup> largest	
D	Blue

Case-1b:

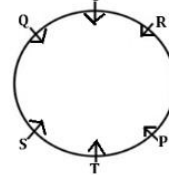
Boxes	Colour
F	Red
B	
2 <sup>nd</sup> largest	
D	Blue

27. (3)

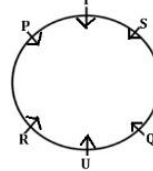
28. (5)

29. (3)

30. (3)

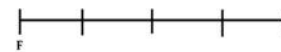


From II,

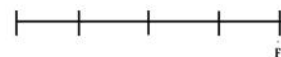


31. (5)

From I,

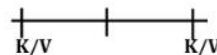


OR



And, Pink < Red < Purple

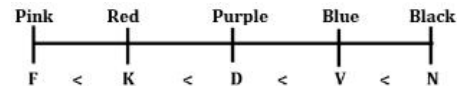
From II,



Purple < Blue < Black (N) and Pink < D

From both I and II,

We get that F is the lightest box and is of Pink color and K is second heaviest and is of Red color.



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32. (4) From I,  
 5. L/O  
 4.  
 3. M April  
 2.  
 1. O/L

And L can be born either in September or November. And O is born in January.

From II,  
 $K < L < N$

From both I and II,

Even by combining both the statements we only know that K is born in November and N is born in July but we cannot find that either K or N live on 4th floor, so both together are not sufficient.

5. L September  
 4. K/N November/ July  
 3. M April  
 2. K/N November /July  
 1. O January

33-35. The one who got first rank run complete 100m but rest all run different distance but less than 100m in that time. The one who got II rank is only 5m behind the border line. Means the one who got II rank runs 95m. The difference between the distance covered by C and D is 5m. C covers less distance than F. F runs less distance than E. Both A and B run less distance than D. Means either F or D got second rank but None of the given person runs 90m. C run 10 km more than G. So, clearly F got II rank.

Rank	Persons	Distance
I	E	100m
II	F	95m

The difference between the distance covered by C and G is same as the distance covered by F and A. So, clearly A covers 85m. The difference between the sum of the distance covered by A and D and sum of the distance covered by E and F is 23. From this we get that D covers 87m.

Rank	Persons	Distance
I	E	100m
II	F	95m
	D	87m
	A	85m

The difference between the distance covered by C and D is 5m. C run 10 km more than G. Nobody covers less distance than 75m. It means C runs 92m and G runs 82m and also C & D got III and IV rank respectively. B covers 3m less distance than G. So, the final arrangement is--

Rank	Persons	Distance
I	E	100m
II	F	95m
III	C	92m
IV	D	87m
V	A	85m
VI	G	82m
VII	B	79m

33. (2) 34. (3) 35. (4)  
 36. (3) From (I) and (III), The arrangement of person facing north in increasing order of their heights from left to right is-----

$$T < Q < S < P/R < P/R$$

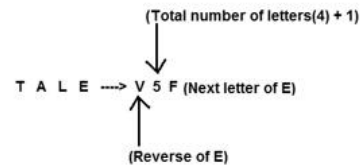
37. (4)

38-40. This is question of Coding-Decoding based on new pattern. In these questions, following logic is applied to decode the code:-

If the total number of letters in the word is even,  
 1st letter of the code:- Reverse(A-Z, B-Y....) of the greatest(according to the alphabetical series) vowel in the word.

2nd letter of the code:- Total number of letters in the word + 1

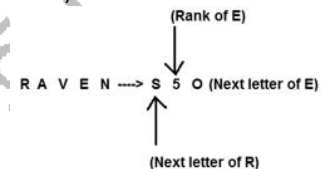
3rd letter of the code:- Next letter(according to the alphabetical series) of the last letter of the word.



If the total number of letters in the word is odd,  
 1st letter of the code:- Next letter(according to the alphabetical series) of the first letter of the word.

2nd letter of the code:- Rank/Place value of the greatest vowel in the word.

3rd letter of the code:- Next letter(according to the alphabetical series) of the last letter of the word.



38. (4) 39. (3) 40. (4)

41-45. Logic: - There are six words in the input. In each of the step the words are arranged in reverse alphabetical order such that next letter of the last letter of that word is also placed with it. And also in each step a number is placed at the right end which is the place value of the last letter of the word which is arranged, with the last digit of that number(place value) is repeated once in it. For example Vice (place value of e = 5) so 55 is placed at the rightmost end.

Input: quite similar dull go test vice

Step I: vicef quite similar dull go test 55

Step II: testu vicef quite similar dull go 55 200

Step III: similars testu vicef quite dull go 55 200 188

Step IV: quitef similars testu vicef dull go 55 200 188 55

Step V: gop quitef similars testu vicef dull 55 200 188 55 155

Step VI: dullm gop quitef similars testu vicef 55 200 188 55 155 122

41. (4) 42. (2)  
 43. (4) 44. (3) 45. (1)  
 46. (3)

Lets efficiency of Kartik is x unit/day and Anup is 1.75x unit/day

ATQ—

22 days (Ankur + Shubham) + 6 days (Shubham + Kartik) + 30 day (Kartik + Anup) = 576

$22 \times 9 + 6 \times 8 + 30(x + 1.75x) = 576$

$30(2.75x) = 576 - 246$

$2.75x = 330/30$

$x = 11/2.75$

$x = 4$  unit/day

efficiency of Anup =  $4 \times 1.75 = 7$  unit/day

(Kartik + Anup) × x days + (Ankur + Shubham) × (x + 2 $\frac{2}{3}$ ) day = 576 ×  $\frac{87.5}{100}$   
 $(4 + 7) \times x + 9 \times (x + \frac{3x+8}{3}) = 576 \times \frac{7}{8}$   
 $11x + 9x + 24 = 504$   
 $20x = 480$   
 $x = 24$  days

efficiency of Prabhat =  $\frac{576 \times \frac{1}{8}}{6} = 12$  unit/day  
 Prabhat will do in (x + 12) days = (24 + 12) × 12 = 432 unit  
 Required portion =  $\frac{432}{576} = \frac{3}{4}$

47. (1) If Ankur and Shubham work alternatively,  
 then both work for  $\frac{2}{2}$  days individually  
 Same, if Kartik and Anup work for  $\frac{2}{2}$  day  
 alternatively both work for  $\frac{2}{4}$  day individually

ATQ—  
 $\text{Ankur} \times \frac{y}{2} + \text{Shubham} \times \frac{y}{2} + \text{Kartik} \times \frac{y}{4} + \text{Anup} \times \frac{y}{4}$   
 $= 576 \times (100 - \frac{75}{8}) \times \frac{1}{100}$

or  
 $(\text{Ankur} + \text{Shubham}) \times \frac{y}{2} + (\text{Kartik} + \text{Anup}) \times \frac{y}{4} = 522$   
 $9 \times y + (4 + 7) \times \frac{y}{2} = 522 \times 2$

y = 72 days

Efficiency of Abhimanyu =  $\frac{576 \times \frac{75}{8} \times \frac{1}{100}}{9} = 6$  unit/day  
 Abhimanyu work did in (y + 16) days  
 $= (72 + 16) \times 6 = 528$  unit  
 Remaining work done by Anup and Kartik in  
 $= \frac{576 - 528}{11} = \frac{48}{11}$  days

48. (2) **Quantity I -**  
 No. of ways arranged 7 HR's and 7 CEO's such that  
 no two HR's and Two CEO's adjacent/  
 $= 7! \times 7! \times 2$   
 $= 5040 \times 5040 \times 2$

**Quantity II -**  
 No. of ways arranged 7 HR's  
 And 7 CEO's such that all CEO's sit together  
 $= 8! \times 7!$   
 $= 40320 \times 5040$

49. (1) So, **quantity I < Quantity II**  
**Quantity I -**  
 Let length of rectangle is l cm and breadth is b cm  
 ATQ,  
 $(\ell + 2) \times (b + 2) = \ell b + 84$   
 $\ell + b = 40$  ... (i)  
 $\ell \times (b - 3) = \ell b - 72$   
 $\ell b - 3\ell = \ell b - 72$   
 $\ell = 24$  cm  
 perimeter of square =  $2(24 + 16)$   
 $= 80$  cm

**Quantity II -**  
 Volume of cylinder =  $\pi r^2 h$   
 $= \frac{22}{7} \times 14 \times 14 \times 56$   
 $= 34496$  sq.cm  
 Number of sphere formed from cylinder  
 $= \frac{34496}{\frac{4}{3} \pi r^3}$   
 $= \frac{34496}{\frac{4}{3} \times \frac{22}{7} \times \frac{14}{2} \times \frac{14}{2} \times \frac{14}{2}}$   
 $= 24$

50. (2) **Quantity I > Quantity II**  
**Quantity I -**  
 Total number of chocolates  
 $= 12$

Required probability  
 $= \frac{{}^5C_2 \times {}^4C_2}{{}^{12}C_4}$   
 $= \frac{60}{495}$   
 $= \frac{4}{33}$

51. (3)

**Quantity II -**  
 Required probability  
 $= \frac{{}^5C_2 \times {}^4C_2 \times {}^3C_2}{{}^{12}C_4}$   
 $= \frac{120}{495}$   
 $= \frac{8}{33}$

**Quantity I < Quantity II**

Let, marked price of both articles be 600x  
 S.P. of article X =  $600x \times \frac{72}{100} = 432x$   
 S.P. of article Y =  $600x \times \frac{85}{100} = 510x$   
 ATQ,  
 $510x - 432x = 312$   
 $\Rightarrow 78x = 312$   
 $\Rightarrow x = 4$   
 Cost price of article 'X' =  $\frac{432 \times 4}{120} \times 100 = 1440$   
 Cost price of article 'Y' =  $1520 \times 2 - 1440 = 3040 - 1440 = 1600$

Profit % earned on selling article Y =  $\frac{510 \times 4 - 1600}{1600} \times 100$   
 $= \frac{440}{1600} \times 100 = 27.5\%$

52. (5)

Let M.P. of each article sold by each seller be 800x  
 Cost price of article Y sold by B =  $\frac{800x \times 67.5}{120}$   
 $= 450x$   
 Cost price of article Y sold by E =  $\frac{800x \times 72}{4 \times 100} \times 3$   
 $= 432x$   
 Cost price of article X sold by C =  $\frac{800x \times 85}{125}$   
 $= 544x$   
 Cost price of article X sold by E =  $\frac{800x \times 54}{135}$   
 $= 320x$   
 ATQ,  
 $(450x + 432x) - 544x - 320x = 216$   
 $882x - 864x = 216$   
 $\Rightarrow x = \frac{216}{18} = 12$   
 M.P. of each article =  $800 \times 12 = 9600$   
 Cost price of article Y sold by C =  $\frac{9600 \times 75}{160}$   
 $= \text{Rs } 4560$

53. (2)

Let M.P. of each article be 400x  
 Cost price of article X sold by B =  $\frac{400x \times 73.5}{168}$   
 $= 175x$   
 Cost price of article Y sold by D =  $\frac{400x \times 63}{120}$   
 $= 210x$   
 Required ratio =  $\frac{175x}{210x} = \frac{5}{6}$

54. (4)

Let M.P. of each article = 400x  
 S.P. of article X sold by E =  $\frac{400x \times 54}{100} = 216x$   
 Cost price of article Y sold by E = 216x  
 Selling price of article Y sold by E =  $\frac{400x \times 72}{100}$   
 $= 288x$   
 Profit % =  $\frac{288x - 216x}{216x} \times 100$   
 $= \frac{72x}{216x} \times 100 = 33\frac{1}{3}\%$

55. (2)

Let, M.P. of each article be 400x  
 C.P. of article X sold by A =  $\frac{400x}{2} = 200x$   
 S.P of article X sold by A =  $200x \times \frac{120}{100}$   
 $= 240x$   
 SP of article Y sold of A =  $400x \times \frac{85}{100}$   
 $= 340x$   
 Let, CP of article Y sold by A = y  
 ATQ,  
 $(200x + y) \times \frac{125}{100} = 240x + 340x$   
 $(200x + y) = \frac{580x}{5} \times 4$   
 $\Rightarrow y = 264x$   
 Required % =  $\frac{264x - 240x}{264x} \times 100 = 9\frac{1}{11}\%$

# Grand Test – SPM 180702



56-57. Ratio between A's, B and C's profit share

$$= 45 \times 8 : 9x \times 6 : 11x \times 12$$

$$= 60 : 9x : 22x$$

56. (4) Let profit sharing of A, B and C be  $60z$ ,  $9xz$  and  $22xz$  respectively.

ATQ,

$$22xz - 9xz = 2340$$

$$\Rightarrow 13xz = 2340$$

$$\Rightarrow xz = 180$$

B's and C's share in profit is  $9 \times 180$  and  $22 \times 180$  respectively.

$$\text{A's share in profit} = \frac{9 \times 180}{6} \times 5 = 1350$$

Total profit earned by all three together =  $1350 + 1620 + 3960 = 6930$

57. (3)

ATQ,

$$\frac{60}{60 + 9x + 22x} = \frac{600}{2460}$$

$$\Rightarrow 246 = 60 + 31x$$

$$\Rightarrow x = \frac{186}{31} = 6$$

58. (3)

$\angle ABC = 90^\circ$  (Semicircle property)

$$\angle CAB + \angle ACB + \angle ABC = 180^\circ$$

$$\angle CAB + \angle ACB = 90^\circ$$

As  $\angle ACB \leq 45^\circ$  So,  $\angle CAB \geq 45^\circ$

$$\angle ACD + \angle CAD + \angle ADC = 180^\circ$$

$$\angle CAD + \angle ADC = 90^\circ$$

But  $\angle ACB = \angle CAD$  (AD || BC)

$$\angle ACB + \angle ADC = 90^\circ$$

As  $\angle ACB \leq 45^\circ$  So,  $\angle ADC \geq 45^\circ$

**Quantity I  $\geq$  Quantity II**

59. (2)

Case I: When all 4 black flag selected

Two ways could be

1 green flag + 1 blue flag or 2 blue flags

$$\text{No. of ways to arrange} = \frac{6!}{4!} + \frac{6!}{4!2!}$$

Case II:

When all 3 blue flag selected

3 ways could be

2 black flags + 1 green flag or 3 black flags

$$\text{No. of ways} = \frac{6!}{3!2!} + \frac{6!}{3!3!}$$

Case III:

When one green selected

$\Rightarrow$  3 black + 2 blue [other cases already included]

$$\frac{6!}{3!2!}$$

Adding all

$$\Rightarrow 30 + 15 + 60 + 20 + 60$$

$$= 185$$

60. (1)

All colored used  $\Rightarrow$

1 green flag + 2 black flags + 3 blue flags

1 green flags + 3 black flags + 2 blue flags

1 green flag + 4 black flags + 1 blue flag

$$\Rightarrow \frac{6!}{2!3!} + \frac{6!}{3!2!} + \frac{6!}{4!}$$

$$\Rightarrow 60 + 60 + 30$$

$$= 150$$

61. (2)

Let cost price of all three type of phone = X Rs.

Total phone sold by store A

$$= 20000 \times \frac{20}{100} = 4000$$

Samsung phones sold by store A

$$= 4000 \times \frac{8}{25} = 1280$$

MI phones sold by store A

$$= 4000 \times \frac{7}{25} = 1120$$

Oppo phones sold by store A

$$= 4000 \times \frac{10}{25} = 1600$$

Selling price Samsung phone

$$= \frac{150}{100} \times X \times \frac{75}{100} = 1.125X$$

Selling price of MI phones

$$= \frac{150}{100} \times X \times \frac{80}{100} = 1.2X$$

Selling price of Oppo phones

$$= \frac{150}{100} \times X \times \frac{90}{100} = 1.35X$$

$$\text{Total C.P.} = 1280X + 1120X + 1600X = 4000X$$

$$\text{Total S.P.} = 1280 \times 1.125X + 1120 \times 1.2X + 1.35 \times 1600X$$

$$= 1440X + 1344X + 2160X$$

$$= 4944X$$

$$\text{Required \%} = \frac{4944X - 4000X}{4000X} \times 100$$

$$\frac{944X}{4000X} \times 100 = 23.6\%$$

62. (1)

Oppo phone sold from store C

$$= 20000 \times \frac{28}{100} \times \frac{3}{14} = 1200$$

Samsung phones sold from store E

$$= 20000 \times \frac{25}{100} \times \frac{9}{25}$$

$$= 1800$$

Given, Ratio of selling price of Oppo : Selling price of Samsung = 13 : 12

Total selling price of Oppo phone (store C)

$$= 1.5 \times \frac{13}{25} = 78 \text{ lakh}$$

Total selling price of Samsung phone (Store E)

$$= 1.5 \times \frac{12}{25} = 72 \text{ lakh}$$

Total C.P. of Oppo phones (store C)

$$\frac{78}{125} \times 100 = 62.4 \text{ lakh}$$

C.P. of one Oppo phone (store C)

$$= \frac{62.4}{1200} = 5200 \text{ Rs.}$$

Total C.P. of Samsung phone (Store E)

$$= \frac{72}{120} \times 100 = 60 \text{ lakh}$$

C.P. of one Samsung phone (Store E)

$$= \frac{60}{1800}$$

$$= 3333 \frac{1}{3} \text{ Rs.}$$

# Grand Test – SPM 180702



63. (3) Total mobile phones sold by store E

$$= 20000 \times \frac{25}{100} = 5000$$

Samsung : MI : Oppo phones sold by store E

$$= 5000 \times \frac{9}{25} : 5000 \times \frac{7}{25} : 5000 \times \frac{9}{25}$$

$$= 1800 : 1400 : 1800$$

Let SP of each type of phones sold by store E

$$= 10X, 9X, 7X$$

$$\text{Total SP} = 1800 \times 10X + 1400 \times 9X + 1800 \times 7X = 2.16 \text{ lakh}$$

$$= 43200X = 2.16 \text{ cr } X = 500$$

S.P. of each Samsung, MI, Oppo phone

$$= 500 \times 10, 500 \times 9, 500 \times 7$$

$$= 5000, 4500, 3500$$

Total phone sold by store B

$$= 20000 \times \frac{15}{100} = 3000$$

Samsung : MI : Oppo phones sold by store B

$$= 3000 \times \frac{7}{15} : 3000 \times \frac{3}{15} : 3000 \times \frac{5}{15}$$

$$= 1400 : 600 : 1000$$

Total SP of phones sold by store B

$$= 5000 \times 1400 + 4500 \times 600 + 3500 \times 1000$$

$$= 1.32 \text{ cr}$$

64. (4) Total phones sold by store B

$$= 20000 \times \frac{28}{100} = 5600$$

Samsung and Oppo phones sold by store C

$$= 5600 \times \frac{7}{14} : 5600 \times \frac{3}{14}$$

$$= 2800 : 1200$$

Given, total selling price = 1.58 cr

Total S.P. of Samsung Phones

$$= 1.58 \text{ cr} \times \frac{49}{79} = 98 \text{ lack}$$

Total CP of Samsung phones

$$= (98 - 14)$$

$$= 84 \text{ lakh}$$

Total S.P. of Oppo phones

$$= 1.58 \text{ cr} \times \frac{30}{79}$$

$$= 60 \text{ lakh}$$

Total C.P. of Oppo phones

$$= 60 \times \frac{100}{112.5}$$

$$= 53.3 \text{ lakh}$$

$$\text{Required \%} = \frac{5330000 - 8400000}{1200} \times 100$$

$$= 32.44\% \text{ (approx)}$$

$$= 31.4$$

65. (2) Speed of first train = 60 km/h

Total distance = 480 km

$$\text{Time taken by first train to cover that distance without stoppage} = \frac{480}{60} = 8 \text{ h}$$

9 station  $\times$  5 minute = Total stoppage time

$$= 45 \text{ minute}$$

Train took total time to reach Lucknow

$$= 8 \text{ hr } 45 \text{ minute} = \frac{35}{4} \text{ hour}$$

2<sup>nd</sup> Train reach 30 min. before it start 2 hour late from Delhi

So,

$$\text{Time taken by 2<sup>nd</sup> train} = 8 \text{ h } 45 \text{ min} - 2 \text{ h}$$

$$= 6 \text{ hr } 15 \text{ min.}$$

$$= 6 \frac{1}{4} = \frac{25}{4} \text{ hour}$$

$$\text{Speed of 2<sup>nd</sup> Train} = \frac{480 \times 4}{25} = \frac{384}{5} \text{ km/h}$$

$$\text{Required Speed ratio of train} = \frac{60}{\frac{384}{5}} = 25:32$$

66. (3)

Let, Red balls = x

Blue balls = y

ATQ,

$$2 \times \frac{x}{(x+y)} \times \frac{y}{(x+y-1)} = \frac{1}{2} \dots\dots\dots(i)$$

And,

$$\frac{x \times (x-1)}{(x+y)(x+y-1)} = \frac{3}{20} \dots\dots\dots(ii)$$

Dividing (ii) by (i)

$$\Rightarrow \frac{x-1}{y} = \frac{3}{5}$$

$$\Rightarrow 5x - 5 = 3y \dots\dots(iii)$$

And, from (i)

$$4xy = (x+y)(x+y-1) \dots\dots(iv)$$

From (iii) and (iv)

$$4x \left( \frac{5x-5}{3} \right) = \left[ \frac{5x-5+3x}{3} \right] \left[ x + \frac{5x-5}{3} - 1 \right]$$

$$\Rightarrow \frac{20x}{3} (x-1) = \left[ \frac{8x-5}{3} \right] \left[ \frac{8x-8}{3} \right]$$

$$\Rightarrow 60x^2 - 60x = 64x^2 - 64x - 40x + 40$$

$$\Rightarrow -4x^2 + 44x - 40 = 0$$

$$\Rightarrow x^2 - 11x + 10 = 0$$

$$\Rightarrow x^2 - 10x - x + 10 = 0$$

$$\Rightarrow x(x-10) - 1(x-10) = 0$$

$$\Rightarrow x = 1, 10$$

$$x = 1 \quad \left| \quad x = 10 \right.$$

$$\Rightarrow y = 0 \quad \left| \quad \Rightarrow y = 15 \right.$$

But y can't be zero.

$\Rightarrow$  Number of red balls = 10

Number of blue balls = 15

$$\text{Required probability} = \frac{{}^{10}C_2 + {}^{10}C_1 \cdot {}^{15}C_1}{{}^{25}C_2}$$

$$= \frac{45 + 150}{300} = \frac{195}{300} = \frac{13}{20}$$

67. (2)

Let, Red balls = x

Blue balls = y

ATQ,

$$2 \times \frac{x}{(x+y)} \times \frac{y}{(x+y-1)} = \frac{1}{2} \dots\dots\dots(i)$$

And,

$$\frac{x \times (x-1)}{(x+y)(x+y-1)} = \frac{3}{20} \dots\dots\dots(ii)$$

Dividing (ii) by (i)

$$\Rightarrow \frac{x-1}{y} = \frac{3}{5}$$

$$\Rightarrow 5x - 5 = 3y \dots\dots(iii)$$

And, from (i)

$$4xy = (x+y)(x+y-1) \dots\dots(iv)$$

From (iii) and (iv)

$$4x \left( \frac{5x-5}{3} \right) = \left[ \frac{5x-5+3x}{3} \right] \left[ x + \frac{5x-5}{3} - 1 \right]$$

$$\Rightarrow \frac{20x}{3} (x-1) = \left[ \frac{8x-5}{3} \right] \left[ \frac{8x-8}{3} \right]$$



# Grand Test – SPM 180702



$$\begin{aligned} \Rightarrow 60x^2 - 60x &= 64x^2 - 64x - 40x + 40 \\ \Rightarrow -4x^2 + 44x - 40 &= 0 \\ \Rightarrow x^2 - 11x + 10 &= 0 \\ \Rightarrow x^2 - 10x - x + 10 &= 0 \\ \Rightarrow x(x - 10) - 1(x - 10) &= 0 \\ \Rightarrow x = 1, 10 \end{aligned}$$

$x = 1$	$x = 10$
$\Rightarrow y = 0$	$\Rightarrow y = 15$

But y can't be zero.  
 $\Rightarrow$  Number of red balls = 10  
 Number of blue balls = 15

$$\begin{aligned} \text{Required probability} &= \frac{{}^{21}C_2}{{}^{25+11}C_2} \\ &= \frac{21 \times 20}{36 \times 35} = \frac{1}{3} \end{aligned}$$

68. (4) Let, efficiency of A, B, C and D be 'a', 'b', 'c' and 'd' respectively

$$\text{Total work} = 6b + 6c + 4(a + c) + 2c$$

And also,  $a = b + c$

$$\Rightarrow \text{Total work} = 10b + 16c$$

ATQ,

B did  $\frac{1}{3}$  of work in 6 days

$\Rightarrow$  B can complete whole work in 18 days

And,

$$(10b + 16c) = 18b$$

$$\Rightarrow 16c = 8b$$

$$\Rightarrow \frac{b}{c} = \frac{2}{1}$$

$\Rightarrow$  'C' can complete whole work 'X' in 36 days

A can complete whole work 'X' in  $\frac{18 \times 36}{18+36} = 12$  day.

D can complete whole work 'X' in  $\frac{18}{2} \times 5 = 45$  days.

Ratio of efficiency of A, B, C and D

$$= \frac{1}{12} : \frac{1}{18} : \frac{1}{36} : \frac{1}{45}$$

$$= 15 : 10 : 5 : 4$$

$$\text{Required ratio} = \frac{4 \times 15}{9 \times 10} = \frac{60}{90} = \frac{2}{3}$$

69. (2) Let, efficiency of A, B, C and D be 'a', 'b', 'c' and 'd' respectively

$$\text{Total work} = 6b + 6c + 4(a + c) + 2c$$

And also,  $a = b + c$

$$\Rightarrow \text{Total work} = 10b + 16c$$

ATQ,

B did  $\frac{1}{3}$  of work in 6 days

$\Rightarrow$  B can complete whole work in 18 days

And,

$$(10b + 16c) = 18b$$

$$\Rightarrow 16c = 8b$$

$$\Rightarrow \frac{b}{c} = \frac{2}{1}$$

$\Rightarrow$  'C' can complete whole work 'X' in 36 days

A can complete whole work 'X' in  $\frac{18 \times 36}{18+36} = 12$  day.

D can complete whole work 'X' in  $\frac{18}{2} \times 5 = 45$  days.

Ratio of efficiency of A, B, C and D

$$= \frac{1}{12} : \frac{1}{18} : \frac{1}{36} : \frac{1}{45}$$

$$= 15 : 10 : 5 : 4$$

Let efficiency of A, B, C and D be 15x, 10x, 5x and 4x respectively

$$\text{Total work 'Y'} = (5x + 4x) \times 26$$

$$= 9x \times 26 = 234x$$

'A' can complete work 'Y' in  $\frac{234x}{15} = 15.6$  day

70. (4) Let, efficiency of A, B, C and D be 'a', 'b', 'c' and 'd' respectively

$$\text{Total work} = 6b + 6c + 4(a + c) + 2c$$

And also,  $a = b + c$

$$\Rightarrow \text{Total work} = 10b + 16c$$

ATQ,

B did  $\frac{1}{3}$  of work in 6 days

$\Rightarrow$  B can complete whole work in 18 days

And,

$$(10b + 16c) = 18b$$

$$\Rightarrow 16c = 8b$$

$$\Rightarrow \frac{b}{c} = \frac{2}{1}$$

$\Rightarrow$  'C' can complete whole work 'X' in 36 days

A can complete whole work 'X' in  $\frac{18 \times 36}{18+36} = 12$  day.

D can complete whole work 'X' in  $\frac{18}{2} \times 5 = 45$  days.

Ratio of efficiency of A, B, C and D

$$= \frac{1}{12} : \frac{1}{18} : \frac{1}{36} : \frac{1}{45}$$

$$= 15 : 10 : 5 : 4$$

Efficiency of 'E' = 16x

$$\text{Total work 'Z'} = 16x \times \frac{25}{2} = 200x$$

'A' and 'C' together can complete work 'Z' in

$$= \frac{200x}{(15+5)x} = \frac{200x}{20x} = 10 \text{ days}$$

71. (4) Let cost price of A, B and C type of mobile be Rs. 5x, Rs. 7x and Rs. 9x respectively

$$\text{M.P. of type A mobile} = 5x \times \frac{130}{100} = \text{Rs. } 6.5x$$

$$\text{M.P. of type B mobile} = 7x \times \frac{140}{100} = \text{Rs. } 9.8x$$

$$\text{M.P. of type C mobile} = 9x \times \frac{130}{100} = \text{Rs. } 11.7x$$

$$\text{S.P. of type A mobile} = 6.5x \times \left(100 - \frac{200}{13}\right) \times \frac{1}{100} = 6.5x \times \frac{11}{13} = \text{Rs. } 5.5x$$

$$\text{S.P. of type B mobile} = 11.7x \times \left(100 - \frac{150}{7}\right) \times \frac{1}{100} = \text{Rs. } 7.7x$$

$$\text{S.P. of type C mobile} = 11.7x \times \frac{8}{9} = \text{Rs. } 10.4x$$

Total cost price of Fourteen type A mobile =  $14 \times 5x = \text{Rs. } 70x$

Total selling price of fourteen type A mobile =  $14 \times 5.5x = \text{Rs. } 77x$

Given total profit = Rs. 17500

$$7x = 17500$$

$$x = \text{Rs. } 2500$$

Total profit made by store owner on type B and type C mobile =  $(7.7 \times 20 - 7 \times 20) \times 2500 + (10.4 \times 15 - 9 \times 15) \times 2500$

$$= 14 \times 2500 + 21 \times 2500$$

$$= 35000 + 52500 = \text{Rs. } 87500$$

72. (3) Let cost price of A, B and C type of mobile be Rs. 5x, Rs. 7x and Rs. 9x respectively

M.P. of type A mobile =  $5x \times \frac{130}{100} = Rs. 6.5x$   
 M.P. of type B mobile =  $7x \times \frac{140}{100} = Rs. 9.8x$   
 M.P. of type C mobile =  $9x \times \frac{130}{100} = Rs. 11.7x$   
 S.P. of type A mobile =  $6.5x \times \left(100 - \frac{200}{13}\right) \times \frac{1}{100} = 6.5x \times \frac{11}{13} = Rs. 5.5x$   
 S.P. of type B mobile =  $11.7x \times \left(100 - \frac{150}{7}\right) \times \frac{1}{100} = Rs. 7.7x$   
 S.P. of type C mobile =  $11.7x \times \frac{8}{9} = Rs. 10.4x$

In the transaction –

Given,

In 48 type A mobile, 12 mobile are free.

In 36 type B mobile, 6 mobile are free.

In 39 type C mobile, 9 mobile are free.

Total profit of store owner on selling of 48 type A mobile =

$$48 \times 5x - 36 \times 6.5x$$

$$= 240x - 234x = 6x$$

Total loss of store owner on selling of 36 type mobile = 36

$$\times 7x - 30 \times 9.8x = 252x - 294x = 42x$$

Total loss of store owner on selling of 39 type C mobile =

$$9x \times 39 - 11.7x \times 30 = 351x - 351x = 0$$

Total loss of store owner in this transaction =  $42x - 6x =$

$$36x$$

Total cost price =  $48 \times 5x + 36 \times 7x + 39 \times 9x$

$$= 240x + 252x + 351x = 843x$$

$$\text{Required}\% = \frac{36x}{843x} \times 100 = 4 \frac{76}{281}\%$$

73. (3)

**From I** - lets Mayank invested in scheme A is Rs. P

$$\text{In scheme B} = P + P \times \frac{3}{8} = Rs. \frac{11P}{8}$$

$$\text{In scheme C} = P - P \times \frac{1}{4} = Rs. \frac{3P}{4}$$

Ratio of sum invested in scheme A, B and C = 8 : 11 : 6

**From II**

$$\text{Two year CI on 15\%} = 15 + 15 \times \frac{15 \times 15}{100} = 32.25\%$$

$$\text{Two year CI on 10\%} = 10 + 10 \times \frac{10 \times 10}{100} = 21\%$$

**From I and II**

$$6P \times \frac{32.25}{100} - 8P \times \frac{21}{100} = 7.14$$

$$193.5P - 168P = 714$$

$$P = 28$$

$$\text{Mayank invested in scheme A} = 28 \times 8 = Rs. 224$$

**From I and III**

$$\text{Two year CI on 10\%} = 10 + 10 \times \frac{10 \times 10}{100} = 21\%$$

$$\text{Two year CI on 12\%} = 12 + 12 \times \frac{12 \times 12}{100} = 25.44\%$$

$$\text{Two year CI on 15\%} = 15 + 15 \times \frac{15 \times 15}{100} = 32.25\%$$

ATQ

$$8P \times \frac{21}{100} + 11P \times \frac{25.44}{100} + 6P \times \frac{32.25}{100} = 179.5752$$

$$168P + 193.5P + 279.84P = 17957.52$$

$$P = \frac{17957.52}{641.34}$$

$$P = 28$$

$$\text{Mayank invest in scheme A} = 28 \times 8 = Rs. 224$$

So, I statement and either II and III are required to given answer.

74. (2)

Total Roses = 24

**From I**

Let red roses = x

$$\text{So, } \frac{{}^x C_2}{{}^{24} C_2} = \frac{7}{69} = \text{Probability}$$

$$\frac{x(x-1)}{2} = \frac{7}{69} \times \frac{24 \times 23}{2}$$

$$x^2 - x = 56$$

$$x^2 - x - 56 = 0$$

$$x = 8 - 7$$

$$x = 8 = \text{no. of red roses}$$

**From II**

Left Pink roses = y

$$\text{So } \Rightarrow \frac{{}^y C_1}{{}^{24} C_2} = \frac{15}{92}$$

$$\text{Similarly, } y = 10$$

From (I) & (II)

$$\text{Yellow roses } \Rightarrow 24 - 10 - 8 = 6$$

**From III**

we can't determine any relation

So, only I and II statement required for given answer.

75. (1)

**From I** :  $5x + 4y = 20n$  (where n is integer)

$$4y = 20n - 5x$$

$$4y = 5(4n - x)$$

Since both n and x are integers so y is divisible by 5 because in the above equation  $(4n - x)$  is an integer so this is possible only if the condition mentioned above holds true

**From II**  $x > y$

**From III**  $5x + 5y = 25m$  (where m is an integer)

It cant be determined from the equation that y is divisible by 5. So, y is divisibly by 5 can be answered I only

76. (3)

Let total work = 720w

$$\text{Ram efficiency} = \frac{720}{30} = 24 \text{ w/d}$$

$$\text{Ram : Seema efficiency} = 4 : 3$$

$$\text{Seema efficiency} = \frac{24}{4} \times 3 = 18 \text{ w/d}$$

Shyam & Ekta efficiency

$$= \frac{720}{36} \& \frac{720}{36} \times \frac{1}{2}$$

$$= 20 \& 10 \text{ w/d}$$

Ramesh and Priya efficiency

$$= \frac{720}{40} \& \frac{720}{40} \times \frac{2}{3}$$

$$= 18 \& 12 \text{ w/d}$$

According to question –

$$\frac{(42 + 30)X}{(42 + 30)(X + 4)} = \frac{3}{7}$$

$$504X = 216X + 864$$

$$288X = 864$$

$$X = 3 \text{ days}$$

77. (1)

Let total work = 720w

Efficiency of Gopal & Surbhi

$$= \frac{720}{24} \& \frac{720}{24} \times \frac{1}{4}$$

$$= 30 \& 7.5 \text{ w/d}$$

Efficiency of Ankit & Shushmita

$$= \frac{720}{48} \& \frac{720}{48} \times \frac{2}{3}$$

$$= 15 \& 10 \text{ w/d}$$

Shyams & Ekta efficiency = 20 & 10 w/d

According to question

$$Y = \frac{200}{100} X$$

$$= Y = 2X$$

$$= Y = 2X$$

$$= Y = 2X$$

$$37.5X + (37.5 + 25) (2X) + (20 + 10) \frac{7}{3} = 720$$

$$37.5X + 125X + 70 = 720$$

$$162.5X = 720 - 70$$

$$X = \frac{650}{162.5} = 4$$

$$X = \frac{650}{162.5} = 4$$

$$(X + Y) = (4 + 2 \times 4) = (4 + 8) = 12 \text{ days}$$

78. (3)

Let total work = 720w

Efficiency of Ram & Seema = 24 & 18 w/d

Efficiency of Shyam & Ekta = 20 & 10 w/d

According to question –

Work done by Ram & Seema

$$(24 + 18) \times 5 + 8 \times 24 = 402$$

$$\text{Remaining work done by Shyam & Ekta} = 720 - 402 = 318$$

Share of wage

Ram & Seema share

$$= 18720 \times \frac{402}{720}$$

$$= 10452 \text{ Rs.}$$

Shyam & Ekta share

$$= 18720 \times \frac{318}{720} = 8268 \text{ Rs.}$$

$$= 18720 \times \frac{318}{720} = 8268 \text{ Rs.}$$

$$= 18720 \times \frac{318}{720} = 8268 \text{ Rs.}$$

79. (1) Let total work = 720w  
 Gopal and Surbhi new efficiency  

$$= \frac{720}{24} \times \frac{1}{2} + \frac{720}{24} \times \frac{1}{4} \times \frac{200}{100}$$

$$= 15 + 15 = 30 \text{ w/d}$$
 Ankit new efficiency  

$$= \frac{720}{48} \times \frac{120}{100} = 18 \text{ w/d}$$
 According to question —  
 Remain work  

$$= 720 - \frac{30 \times 6 + (18 + 10) \times 15}{720}$$

$$= \frac{720 - 600}{720}$$

$$= \frac{120}{720}$$

$$= \frac{1}{6} \text{ work}$$

80. (4) According to question —  
 Umesh & Kavita complete whole work in  

$$= \frac{6}{\frac{720}{30}} + \frac{10}{\frac{720}{30}} + 12 \text{ (Umesh & Kavita)} = 1$$

$$= \frac{6}{24} + \frac{10}{24} + 12 \text{ (Umesh & Kavita)} = 1$$

$$= 12 \text{ (Umesh & Kavita)} = 1 - \frac{16}{24}$$

$$= \text{Umesh & Kavita} = \frac{1}{3 \times 12} = \frac{1}{36} \text{ days}$$
 Efficiency of Umesh & Kavita  

$$= \frac{720}{36} = 20 \text{ w/d}$$
 Shyam & Ekta efficiency  

$$= \frac{720}{36} + \frac{720}{36} \times \frac{1}{2}$$

$$= 20 + 10 = 30 \text{ w/d}$$
  
 Required ratio =  $\frac{20}{30} = 2 : 3$

121. (2) Here if we go through the passage, we come to the conclusion that the proposals of protectionist to strengthen the economy have been discussed in the paragraph. Sentence (II) has been discussed in paragraph 1. Hence option (2) is the correct choice. "The proposition of the protectionist camp is that India should adopt a preferential approach towards strategic government procurements in the digital industries." Statement (III) is incorrect as there is no such proposal as it was on this ground they want Foreign firms to get a lesser advantage.

122. (3) We can conclude from paragraph 2 that low innovation rate of India is the reason behind India's low share of global value chains. Global Value Chain refers to the production of a good or service and its global level supply, distribution and posts sales activities. Refer the lines "Many companies in the information technology (IT) and IT-enabled services space are now struggling to achieve this objective through outmoded cost-arbitrage-based business models. Ironically, some of them, unable to keep pace with innovation, are now asking for protection." Sentence (1) and (2) are irrelevant in the context of the passage. Hence option (3) is the correct answer choice.

123. (4) Refer the third paragraph in which it has mentioned the factors which India is facing in order to bring public- private partnership to transform the current condition of India. As public sector lacks trust on private enterprises and are negligent to adopt this reform, public private partnership is found difficult to implement. Hence option (4) is the most appropriate choice.

Refer the lines "However, this potentially meaningful modality of deep public-private partnerships has been throttled by reticence on part of the unions representing public sector enterprises, as well as an all-pervasive lack of trust in the private sector."

124. (2) It has been mentioned in paragraph 4 that according to protectionists India should mandate localization of all data owned by foreign companies, which proves fidelity of option (2).

All the other sentences cannot be inferred from paragraph 4. Refer the lines from paragraph 4 "However, the protectionist camp goes on to offer a tenuous extension of this hypothesis: India should mandate localization of all data owned by foreign companies, again inspired by China."

125. (2) "high-volume and low-value" mentioned in paragraph 5 in which 'high volume' refers to the global flow of data services and 'low- value' refers to the limited earnings from domestic data market. Hence, we can infer that option (2) is the most appropriate choice.

Refer the lines "Despite large volumes, the potential for earning large value from the domestic data market remains limited. Low average revenues per user in telecom and low transaction values in digital payments are indicative of this "high-volume and low-value" paradigm."

126. (4) Among the given options, sentence (2) is grammatically (due to the usage of controls) and contextually incorrect. Sentences (1) and (3) are contextually different and structurally incorrect. They are not inferring the same meaning as per the demand of the question. Hence only option (4) forms the correct sentence which follows the sentences given in the question both grammatically and contextually.

127. (4) The first and the third part of the sentence contain errors. To make the first part grammatically correct, replace 'reform' with 'reforms'. It is to be noted that the general rule for the phrase 'one of the' is "One of the + PLURAL NOUN + that/who etc. + SINGULAR/PLURAL VERB". Moreover, in the third part of the sentence, "had been" should be replaced with "has been" since, "Had been" means something began in the past, lasted for some time, then ended. This is entirely in the past while, both "Has been" and "Have been" mean something began in the past and has lasted into the present time. Drawing a hint from the phrase "the government in recent years", it can be understood that a reform undertaken by the government has been beneficial for (DBT) from past few years and still continues to be beneficial. However, part (II) of the sentence is free from all grammatical errors. Hence, option (4) becomes the most suitable answer choice.

128. (2) In the context of this sentence, the phrase " **devolve into the equivalent of house cats**" means the condition of humans will worsen into a level identical to that of a pet animal. Among the given statements, only the sentence (III) expresses the meaning which complies with the meaning of the phrase and at the same time it makes sure that the actual meaning of the sentence remains intact. Statements (I) and (II) are irrelevant as they alter the meaning of the sentence. Hence (2) is the correct option.

129. (4) 'foresight, ameliorate' is the pair of words that fits in the two sentences to make both the sentences grammatically and contextually complete. Hence, option (4) is the most appropriate choice. **Foresight** means the ability to predict what will happen or be needed in the future. **Ameliorate** means make (something bad or unsatisfactory) better.

**Prodigal** means spending money or using resources freely and recklessly; wastefully extravagant

**Vitiate** means spoil or impair the quality or efficiency of.

**Improvidence** means the quality or state of not foreseeing and providing for the future

- Remediate** means to settle (disputes, strikes, etc.) as an intermediary between parties; reconcile.
- Blemish** means a small mark or flaw which spoils the appearance of something.
130. (4) The given inference in bold can be concluded from all the given paragraphs. After reading the paragraphs it can be understood that all of them are illustrating the change required to neutralize the growing dissatisfaction among farmers. **Paragraph (I)** is narrating that farmers are displeased with the policies present to support them. The given inference can be understood with the statement mentioned satirically in the paragraph “**radical, multi-faceted.....incomes by 2022**”. Moreover, **paragraph (II)** has described that the present practices by government will not enrich farmers. It has suggested to develop a reform to provide marketing freedom for farmers that will help them to capture a larger share of market. For the given inference, the hint can be drawn from the sentence “**But improved productivity will not enrich farmers by itself**”. In addition to, **paragraph (III)** describes about farmers unrest. It has recommended a method to overcome this unrest [A part of subsidy...productivity-enhancing investment]. This can be achieved only through a new and updated political reform. Since, all three paragraphs successfully conclude the given inference, **option (4)** becomes the most suitable answer choice.
131. (2) Among the given options, sentence (3) is grammatically incorrect as ‘are’ should be used in place of ‘is’ because of the use of ‘forces’. Sentences (1) and (4) are contextually different and structurally incorrect. They are not inferring the same meaning as per the demand of the question. Hence only option (2) forms the correct sentence which follows the sentences given in the question both grammatically and contextually.
132. (3) There are errors in part (I) and part (III) of the sentence. To form a grammatically correct sentence, replace these parts with the expression (I) and (III) respectively. It is to be noted that the adverb ‘fairly’ is always accompanied with the positive degree. However, “rather” can be used with either the positive degree or the comparative degree. Therefore, to make the part of the sentence grammatically correct “fairly better” should be replaced with “rather good”. Moreover, in part (III) replace ‘left off’ with ‘left off’ since if something continues from where it ‘left off’, it starts happening again at the point where it had previously stopped. Since part (II) of the sentence is devoid of all grammatical errors, therefore, option (3) becomes the most suitable answer choice.
133. (4) In the context of this sentence, the phrase “**countless tales of AI-induced woe**” means many movies which displayed the pain and sorrow that have been caused because of AI. Among the given statements, both sentences (I) and (II) express the meaning which complies with the meaning of the phrase and at the same time they make sure that the actual meaning of the sentence remains intact. Statement (III) is irrelevant as it alters the meaning of the sentence. Hence (4) is the correct option.
134. (5) The most appropriate set of words that appropriately fit in the context of the paragraph is ‘derelict, immigrants’. ‘Derelict’ is an **adjective** which means in a very poor condition as a result of disuse and neglect. Moreover, ‘immigrants’ is a **noun** which means a person who comes to live permanently in a foreign country. Since, all the other sets of words fail to form a comprehensive sentence, **option (5)** becomes the most suitable answer choice.
135. (3) After reading the paragraphs carefully, it can be understood that the paragraphs (I) and (III) depict the given inference. Paragraph (I) has mentioned the release of model tender document of NHPS which states its concerns regarding the implementation of the scheme in such a vast scale. Moreover, it also expresses its agitation towards the private hospitals which may receive undue benefits from the schemes. Paragraph (III) is describing about the issue mentioned in the model tender document of NHPS of the requisite of pre-authorization to perform on heart ailments and cancer from the NHPS’s implementation support agency. Since, all three paragraphs mention the questions raised in The Model Tender Document for The Selection of Implementing Agencies For the NHPS, option (4) becomes the most suitable answer choice.
136. (5) We can infer from second paragraph of the passage that all the given sentences are the ways by which health goal can be achieved by different organizations. Refer the lines “Known avoidable environmental risk factors cause at least 13 million deaths every year and about one quarter of the global burden of disease.” “A determinant-based definition of health and well-being will not only help in better perception of disease, but also provide a better tool in deciding the right priority for public health interventions.”
137. (3) We can conclude after going through both the paragraphs that sentence (3) is forming a connection between the both the paragraphs. It has been mentioned that there has been tremendous progress in addressing the tropical diseases and elimination efforts are still needed, which is also been in paragraph 4 that countries giving emphasis on the efforts to be needed for eliminating the diseases. All the other options are irrelevant with respect to both the paragraphs. Hence option (3) is the most appropriate choice. Refer the lines “While there has been tremendous progress in addressing neglected tropical diseases in many countries, including India, due to concerted efforts of the government, elimination efforts are still to be universalized across many districts.” “The countries affected by neglected tropical diseases must intensify efforts to achieve elimination that is validated and universal care for disabled persons.”
138. (4) ‘Holistic’, as used in the passage, can be understood with universal health coverage in which there is revised definition of well-being and its application has been provided, from which it is clear that sentences (I), (II) and (III) are correct. Sentence (IV) is irrelevant. Hence option (4) is the most appropriate choice.
139. (3) Paragraph 5 talks about the ways to strengthen primary health and support secondary and tertiary infrastructure empowering people to protect themselves from illness and ensuring proper and complete treatment. Thus, we can deduce that in order to adopt a holistic approach that would benefit all, the involvement of all the sectors is required along with the different local teams and NGO’s towards primary care and in the improvement of secondary and tertiary structure. Hence option (3) is the correct choice.
140. (1) “Achieving Universal health coverage” is an appropriate title of the passage.
141. (2) Among the given options, sentence (4) is grammatically and contextually incorrect. Sentences (1) and (3) are contextually different and structurally incorrect. They are not inferring the same meaning as per the demand of the question. Hence only option (2) forms the correct sentence which follows the sentences given in the question both grammatically and contextually.
142. (3) The error lies in the third part of the sentence. It is to be noted that (1) little and (1) few are quantifiers meaning ‘some’. Little and few have negative meanings. They are used to mean ‘not as much as may be expected or wished for’. ‘a little’ is used with singular uncountable nouns while ‘a few’ with plural countable nouns. Since the noun associated with the quantifier is an uncountable noun [extra spring in our step and sparkle in our eye], the quantifier to be used should be ‘a little’. However, part (I) and (II) are grammatically correct therefore, option (3) becomes the most viable answer choice.
143. (1) The most appropriate set of words that appropriately fit in the context of the paragraph is ‘zeal, predilection’. ‘Zeal’ is a **noun** which means great energy or enthusiasm in pursuit of

- a cause or an objective. Moreover, '**predilection**' is a **noun** which means a preference or special liking for something; a bias in favour of something. Since, all the other sets of words fail to form a comprehensive sentence, **option (1)** becomes the most suitable answer choice.
- Animosity** means strong hostility.  
**Antipathy** means a deep-seated feeling of aversion.  
**Sloth** means reluctance to work or make an effort; laziness.  
**Propensity** means an inclination or natural tendency to behave in a particular way.
144. (1) Among the given paragraphs, paragraph (I) and (II) are deducing the given inference in bold. The inference is stating that the latest alterations made in NCERT books didn't follow the revision process like it used to earlier. Though being an autonomous body, this incident shows the weakness of NCERT. Drawing a hint from the sentence of paragraph (I) "The names that figure on the books as "textbook development committees" remain the same, though most of them have not been involved in the insertion/revision process", the given inference can be concluded. Moreover, paragraph (II) is also questioning these alterations in a critical manner. This can be understood from the sentence "This, in turn, raises questions about why the current changes have been made as they have". While, the sentence "...in an autonomous body that has shown its ability to take an imaginative course while generating a discursive relationship with all those involved in education, without rendering itself an arm of the state" expresses that NCERT has failed to correctly implement the revision process in spite of being an autonomous body. However, paragraph (III) fails to depict the given inference as it is merely describing the alterations made by NCERT in the textbooks. Thus, option (1) becomes the most viable answer choice.
145. (2) The most appropriate set of words that appropriately fit in the context of the paragraph is 'jaded, reported'. '**Jaded**' is an **adjective** which means bored or lacking enthusiasm, typically after having had too much of something. Moreover, '**reported**' is a **verb** which means give a spoken or written account of something that one has observed, heard, done, or investigated. Since, all the other sets of words fail to form a comprehensive sentence, **option (2)** becomes the most suitable answer choice.  
**Fatigued** means cause (someone) to feel exhausted.  
**Energized** means give vitality and enthusiasm to.
146. (3) Among the given options, sentences (2) and (4) are grammatically incorrect. In sentence (2) "enacted" should be used in place of "enact". In sentence (4) "belonging" should be used in place of "belonged". Sentence (1) is contextually different and structurally incorrect. It is not inferring the same meaning as per the demand of the question. Hence only option (3) forms the correct sentence which follows the sentences given in the question both grammatically and contextually.
147. (3) The third part of the sentence contains an error. To make part (III) of the sentence free from errors, replace 'politics' with 'political', since the word required here is an adjective to describe the quality of the "will"; whereas, 'politics' is a noun which means 'the activities associated with the governance of a country or area, especially the debate between parties having power'. Although, part (I) and (II) of the sentence is absolutely correct, therefore, option (3) becomes the most viable answer choice.
148. (3) The given inference in bold states that with the help of lateral entry at senior levels of bureaucracy better policy making and implementation can be done. After reading the paragraphs, it is inferential that only paragraph (II) provides the given inference since, it is describing about the entry of new and talented personnel at joint-secretary levels which is vital for policy-making and implementation of government schemes. However, paragraph (I) is describing about selecting employees in IAS scheme who becomes versatile while serving different departments which is irrelevant in the context of the inference. In addition to, paragraph (III) is describing about the proposal of selecting process for lateral entry to be clear and appropriate is still unheard. Thus, the given inference can be precisely deduced by only paragraph (II), hence, option (3) becomes the most suitable answer choice.
149. (5) The most appropriate set of words that appropriately fit in the context of the paragraph is 'coalition, adjured'. '**Coalition**' is a **noun** which means a temporary alliance for combined action, especially of political parties forming a government. Moreover, '**adjured**' is a **verb** which means urge or request (someone) solemnly or earnestly to do something. Since, all the other sets of words fail to form a comprehensive sentence, **option (5)** becomes the most suitable answer choice.  
**Alliance** means a union or association formed for mutual benefit, especially between countries or organizations.  
**Trespassed** means enter someone's land or property without permission.
150. (5) The given inference is stating that SBI will not manage the oil payments of Iran. After reading the paragraphs it can be understood that this inference is not expounded in any of them. Paragraph (I) has illustrated the exports data of oil of Iran. While, paragraph (II) has mentioned India's plan to spend foreign capital on energy resources as it might become the third largest energy consumer. Moreover, paragraph (III) has merely provided the imports data of oil of India. Therefore, option (5) becomes the most suitable answer choice.
151. (1) Among the given options, sentence (3) is grammatically and contextually incorrect. Sentences (2) and (4) are contextually different and structurally incorrect. They are not inferring the same meaning as per the demand of the question. Hence only option (1) forms the correct sentence which follows the sentences given in the question both grammatically and contextually.
152. (5) All the parts of the given sentence are grammatically correct and contextually meaningful hence, do not require any corrections. Therefore, option (5) becomes the most viable answer choice.
153. (2) In the context of this sentence, the phrase "**spanner in the works**" means a roadblock that prevents an activity from succeeding or to deliberately sabotage an activity. Among the given statements, only the sentence (I) expresses the meaning which complies with the meaning of the phrase and at the same time it makes sure that the actual meaning of the sentence remains intact. Statements (II) and (III) are irrelevant as they alter the meaning of the sentence. Hence (2) is the correct option.
154. (5) The paragraph after the rearrangement is describing about the position of china's currency i.e., yuan in the global level in a comparison with dollars. It further describes about china's intention to become the preferred currency of trade among many countries. However, sentence (G) is describing about the India's approach to pursue internationalization of its currency in a comparison with yuan. Therefore, the logical sequence of the coherent sentences is AECBDF. Thus, with the elimination of statement (G), option (5) becomes the most viable answer choice.
155. (4) The paragraph after the rearrangement is describing about the new proposal of Maharashtra government regarding the policies to regulate and control private coaching centers. All the sentences together are forming a coherent paragraph except for statement (D). Sentence (D) has mentioned about admissions in pre-primary section through quotas which is irrelevant in the context of the coherent paragraph. Therefore, the correct sequence of the rearranged paragraph is CAEFB. Hence option (4) is the most viable answer choice.