Analytical Reasoning

Number of Questions : 35 **CEX–0514/18**

Directions for questions 1 to 6: Answer the questions on the basis of the information given below.
In a typical college day at St. Stephens College, New Delhi, exactly seven lecturers A, B, C, D, E, F and G are to give their lectures in an honours class. In the schedule for a day, seven-time slots are available for the speakers and they are numbered from 1 to 7. Only one speaker is assigned one time slot, according to the following conditions.

I. C must speak in either time slot 1 or time slot 7.
II. A must speak immediately before or immediately after D speaks.
III. F must speak in the fourth time slot.
IV. D must speak sometime before B speaks.

1. If G speaks at position 7, any of the following pairs of speakers could speak in time slots immediately adjacent to each other except
(a) F and E
(b) C and A
(c) A and B
(d) C and D
(e) B and G

2. Which of the following must be true?
(a) G speaks sometime before F speaks
(b) C speaks sometime before D speaks
(c) A speaks sometime before F speaks
(d) A speaks sometime before B speaks
(e) A speaks sometime before C speaks.

3. If E wants to speak in the second time slot, then a total of how many scheduling possibilities are there from which we can select the schedule of speakers?
(a) 6 (b) 1 (c) 3
(d) 4 (e) 2

4. If B speaks immediately before F speaks, which of the following could be true?
(a) D speaks in the third time slot
(b) G speaks in the sixth time slot
(c) C speaks in the first time slot
(d) A speaks in the fifth time slot
(e) F speaks in the third time slot.

5. If E speaks sometime before A speaks, which of the following must be true?
(a) G speaks sometime before C speaks
(b) E speaks sometime before G speaks
(c) D speaks sometime before F speaks
(d) F speaks sometime before B speaks
(e) B speaks sometime before F speaks.

6. If B speaks sometime before C speaks, which of the following must be true?
(a) G speaks sometime before A speaks
(b) D speaks sometime before F speaks
(c) A speaks sometime before E speaks
(d) E speaks sometime before B speaks
(e) F speaks sometime before D speaks.

Directions for questions 7 to 10: Answer the questions on the basis of the information given below. A group of three persons is to be selected from six individuals — Keshto, Omprakash, Sanjiv Kumar, Tuntun, Vijyendra and Wahida, according to the following conditions.

I. Either Omprakash or Vijayendra must be selected but neither Vijayendra nor Sanjiv Kumar can be selected with Omprakash.
II. At least one of Sanjiv Kumar and Keshto must be selected.

7. If Vijayendra is not selected, which pair of individuals must be among those selected?
(a) Omprakash and Wahida
(b) Tuntun and Keshto
(c) Tuntun and Omprakash
(d) Omprakash and Keshto
(e) Sanjav Kumar and Keshto.

8. Which of the following is an acceptable selection of persons?
(a) Omprakash, Vijayendra and Tuntun
(b) Keshto, Tuntun and Sanjiv Kumar
(c) Keshto, Omprakash and Sanjiv Kumar
(d) Keshto, Tuntun and Wahida.
(e) Keshto, Sanjiv Kumar and Vijayendra

9. If Sanjiv Kumar is selected, which of the following individuals must also be among the people selected?
(a) Wahida (b) Keshto
(c) Omprakash (d) Tuntun
(e) Vijayendra

10. In which of the following pairs both the persons cannot be among the persons selected?
(a) Vijayendra and Wahida
(b) Omprakash and Wahida
(c) Keshto and Omprakash
(d) Tuntun and Wahida
(e) None of these.

Directions for questions 11 to 15: Answer the questions on the basis of the information given below.

There are three actors, three actresses and three directors making four films, each having one actor and one actress. Exactly one director is working on two films. Actors are – Maharukh Khan, Rakshay Kumar and Susheel Shetty. Actresses are – Pani Mukherjee, Sareena Kapoor and Naveena Tandon. Directors are – Money Ratnam, Cash Chopra and Kaam Gopal Dharna and films are – *Hind*, *Main Hoon*, *Kutty* and *Khoon*. We also know that

I. Rakshay and Susheel are action heroes.
II. Sareena is working with all the action heroes.
III. Susheel and Maharukh work in only one film each.
IV. Rakshay is working with all the actresses whose first names end with 'a'.
V. Money is working with all actresses except Sareena and his films' names start with 'K'.
VI. Each film is has one actor, one actress and a director.

11. Which among the following actor is working for two films?
(a) Maharukh Khan (b) Susheel
(c) Rakshay (d) Either (a) or (c)
(e) Either (b) or (c).

12. Who is the actress of *Hind*?
(a) Sareena (b) Naveena
(c) Pani (d) Either (a) or (b)
(e) Either (a) or (c)

13. Who is the actress of the film in which Maharukh is working?
(a) Sareena (b) Pani
(c) Naveena (d) Either (a) or (c)
(e) Either (b) or (c)

14. Who is the director of the film in which Susheel is working?
(a) Kaam (b) Cash
(c) Money (d) Either (a) or (b)
(e) Either (b) or (c)

15. Who is the director of *Main Hoon*?
(a) Cash (b) Money
(c) Kaam (d) Either (a) or (c)
(e) Either (a) or (b)

Directions for questions 16 to 20: Answer the questions on the basis of the information given below.

I. There are seven friends – Ammar, Bunty, Chandroo, Daksh, Ehsas, Fauji and Gattoo. Two of them reside in Green Park, two in Hari Nagar, two in Vivek Vihar and one in Rajendra Nagar. A geography student and a mathematics student have their accounts in the IndusInd Bank. Others have their accounts each in a separate bank — HSBC, ABN Amro Bank, SBI, Allahabad Bank, Bank of India.
II. Two of them study geography, two history and one each mathematics, physics and statistics.
III. The history and geography students reside either in Hari Nagar or Vivek Vihar.
IV. The Green Park and Hari Nagar residents do not go to SBI, Allahabad Bank or Bank of India.
V. Chandroo, a resident of Rajendra Nagar, studies physics and has his account in Allahabad Bank.
VI. Daksh has his account in SBI and Fauji in HSBC Bank.
VII. Daksh studies geography; Gattoo studies history.
VIII. Bunty and Ehsas reside in Hari Nagar, and Bunty has his account in ABN Amro Bank.

16. Which of the following subjects does Ehsas study?
(a) Mathematics (b) History
(c) Geography (d) Physics
(e) Cannot be determined

17. In which of the following areas does Daksh reside?
(a) Green Park (b) Vivek Vihar
(c) Rajendra Nagar (d) Hari Nagar
(e) Cannot be determined

18. Which of the following subjects does Bunty study?
(a) Geography (b) Physics
(c) Mathematics (d) Statistics
(e) None of these

19. Which of the following subjects does Fauji study?
(a) Statistics (b) Physics
(c) Mathematics (d) Geography
(e) Cannot be determined

20. In which of the following banks no history student has his account?
(a) ABN Amro Bank (b) Allahabad Bank
(c) Bank of India (d) HSBC
(e) Both (b) and (d)

Directions for questions 21 to 24: Answer the questions on the basis of the information given below.
There are 8 people – F, G, H, I, J, K, L and M. Following information is available regarding their relative height. All the following questions pertain to the mentioned 8 people.

I. F is not shorter than G
II. G is not taller than H
III. H is not shorter than I
IV. I is shorter than J
V. J is not shorter than K
VI. K is not taller than L
VII. L is not shorter than M.

21. At most how many people can be of the same height?
(a) 4 (b) 5 (c) 6
(d) 7 (e) 3

22. At the most how many other people can be of the same height as I?
(a) 6 (b) 4 (c) 5
(d) 3 (e) 2

23. At most how many people can be of the same height as J?
(a) 4 (b) 3 (c) 5
(d) 2 (e) 6

24. At least how many other people are of the same height as I?
(a) 6 (b) 0 (c) 1
(d) 2 (e) Data insufficient

Directions for questions 25 to 28: Answer the questions on the basis of the information given below.
For launching its new group-calling service, Nokia offered a free travel bag with each new mobile handset sold. Within the first hour of the launch of the scheme, five couples bought new mobile handsets. Following information is available regarding the name of each couple, the colour and model no (1100, 6300, or 9600 were in offer) of the mobile set and the colour of travel bag each couple chose. Both the mobile handsets and the travel bags were available in golden, silver, black, blue and white colour.

A. No two couples chose travel bags of the same colour.
B. No two couples chose mobile handsets of the same colour.
C. The five couples are the Goyals, the two who bought Nokia 6300 mobile handset, the one who bought Nokia 9600 mobile handset and the one who chose golden travel bag.
D. The Goswamis and the couple who chose blue travel bag bought Nokia 1100.
E. The Walias chose travel bag of the same colour as the Bhargav's mobile handset. Walias also chose mobile handset of the same colour as of Bhaduri's travel bag.
F. Two couples chose travel bags of the same colour as of their respective mobile handsets, but these couples did not purchase Nokia 6300 or Nokia 9600.
G. Bhaduri chose a mobile handset of the same colour as of the travel bag of Bhargavs, which is neither silver nor black.
H. The couple who has bought Nokia 9600, chose silver coloured mobile handset and white coloured travel bag.

25. Who among the following had chosen the Nokia 9600?
(a) Bhaduris (b) Goyals
(c) Goswamis (d) Walias
(e) Bhargavs

26. Who had chosen golden travel bag?
(a) Bhaduris (b) Goyals
(c) Goswamis (d) Bhargavs
(e) Walias

27. Who among the following had bought the Nokia 6300 mobile handset?
(a) Walias (b) Bhaduris
(c) Goyals (d) Either (a) or (b)
(e) Both (a) or (b)

28. Which colour mobile handset did the Goyals buy?
(a) Blue (b) Silver
(c) Golden (d) Black
(e) White

Directions for questions 29 to 31: Answer the questions on the basis of the information given below.
In a BPO unit, there are four counselors namely Noori, Ruhana, Fatina and Juliya. Every day at least 2 counselors are working. In addition, there must be a two-hour lunch break on exactly one day in every week. Every week starts from Monday and ends on Saturday.

Additional Information Given:
I. No counselor can work on three consecutive days of a week.
II. Each counselor can work on two consecutive days but only once during the week.
III. Three counselors can not work together on more than two days during the week.
IV. The two-hour lunch break occurs on a day when Ruhana and Juliya are working together in the office.
V. Ruhana works on at least three days in a week.
VI. Noori works on exactly three days in a week.

29. Which of the following could be a complete and accurate work schedule for the four counselors during a particular week?
(a) Monday- Noori and Fatina; Tuesday- Ruhana and Juliya; Wednesday- Fatina, Juliya and Ruhana; Thursday-Noori and Fatina; Friday- Noori and Ruhana and Saturday- Ruhana and Juliya.
(b) Monday- Noori, Fatina and Ruhana. Tuesday- Ruhana and Juliya; Wednesday- Fatina and Juliya; Thursday- Noori and Fatina; Friday- Noori and Ruhana and Saturday- Ruhana, Juliya.

(c) Monday- Fatina and Ruhana; Tuesday- Ruhana, Fatina and Juliya; Wednesday- Noori and Juliya; Thursday- Noori and Juliya; Friday- Ruhana and Fatina and Saturday- Noori, Ruhana and Fatina.
(d) Monday- Fatina, Ruhana and Juliya; Tuesday- Ruhana and Fatina; Wednesday- Noori, Juliya; Thursday- Noori, Juliya and Fatina. Friday- Ruhana and Fatina and Saturday- Noori and Ruhana.
(e) Monday- Fatina and Juliya; Tuesday- Juliya and Ruhana; Wednesday- Ruhana and Noori; Thursday- Noori and Fatina; Friday- Fatina and Juliya and Saturday- Ruhana and Noori.

30. If only Noori and Juliya work on Wednesday and if there are exactly two days during the week on which exactly three counselors work together, then which counselors definitely work on Friday?
(a) Noori and Juliya
(b) Noori and Fatina
(c) Fatina and Ruhana
(d) Fatina and Juliya
(e) Ruhana and Juliya

31. If Noori works on Tuesday, Friday and Saturday, and Fatina works on Monday, Thursday and Friday, then on which of the following days other than Wednesday, must Juliya work?
(a) Monday or Thursday
(b) Monday or Tuesday
(c) Tuesday or Saturday
(d) Monday or Friday
(e) Friday or Saturday

Directions for questions 32 to 35: Answer the questions on the basis of the following information.

There are 5 players namely Sachin, Ronaldo, Dhanraj, Sampras and Laker who belong to 5 different countries namely India, Brazil, UK, USA and Australia not necessarily in the same order. The five players play tennis, basketball, football, cricket and hockey and they annually earn (in Rs. crores) 1.3, 1.5,1.7, 2.1 and 2.5. Every player plays only one game and belongs to only one-country .The ages (in years) of the players are 21, 28, 31, 34 and 37 again not necessarily in the same order. It is also known:

1 Sachin is not the oldest player and does not have the least annual income but his income is less than Rs.2.0 crore. He does not play football or tennis and is from Brazil.
2. Ronaldo is not from Australia or USA and is the youngest and earns Rs.1.7 crore annually.
3. Dhanraj plays tennis. He is neither from the USA nor Brazil.
4. Sampras is from UK, earns Rs.2.5 crore annually and is 28 yrs old.
5. Laker plays cricket and is 31 yrs old.
6. The player who is from India plays basketball.

32. Which sport does Sachin play?
(a) Cricket (b) Football
(c) Hockey (d) Basketball
(e) Cannot be determined

33. Who is from Australia?
(a) Sachin (b) Ronaldo
(c) Dhanraj (d) Either (b) or (c)
(e) Cannot be determined

34. Who is the oldest among the given five players?
(a) Dhanraj (b) Laker
(c) Sachin (d) Sampras
(e) Cannot be determined

35. If Dhanraj earns Rs.2.1 crore per annum then how much does Laker earn per annum?
(a) Rs. 1.5 crore (b) Rs. 1.3 crore
(c) Rs. 1.7 crore (d) Rs. 2.5 crore
(e) Cannot be determined

Answers and Explanations

1	c	**2**	d	**3**	e	**4**	b	**5**	d	**6**	b	**7**	d	**8**	e	**9**	e	**10**	d
11	c	**12**	a	**13**	b	**14**	d	**15**	d	**16**	c	**17**	b	**18**	e	**19**	a	**20**	e
21	d	**22**	a	**23**	e	**24**	b	**25**	e	**26**	c	**27**	e	**28**	a	**29**	e	**30**	a
31	b	**32**	c	**33**	c	**34**	a	**35**	b										

For questions 1 to 6:

The given conditions are:

I. C must speak in either of the time slot 1 or 7.

II. A must speak immediately before or immediately after D speaks.

III. F must speak in the 4th time slot.

IV. D must speak sometime before B speaks.

1. c As G speaks in time slot 7, then C will be in first slot (according to condition I).
Now using the given conditions, we arrive at the following options:

(i) $\frac{C}{1}, \frac{A}{2}, \frac{D}{3}, \frac{F}{4}, \frac{B}{5}, \frac{E}{6}, \frac{G}{7}$

(ii) $\frac{C}{1}, \frac{D}{2}, \frac{A}{3}, \frac{F}{4}, \frac{E}{5}, \frac{B}{6}, \frac{G}{7}$, etc.

And in rest of the other valid possibilities, it is only the pair of A and B which will not speak immediately adjacent to each other.

2. d Few of the possible combinations according to the given possible conditions are:

(i) $\frac{A}{1}, \frac{D}{2}, \frac{B}{3}, \frac{F}{4}, \frac{G}{5}, \frac{E}{6}, \frac{C}{7}$

(ii) $\frac{D}{1}, \frac{A}{2}, \frac{B}{3}, \frac{F}{4}, \frac{E}{5}, \frac{G}{6}, \frac{C}{7}$

(iii) $\frac{C}{1}, \frac{E}{2}, \frac{G}{3}, \frac{F}{4}, \frac{D}{5}, \frac{A}{6}, \frac{B}{7}$

In every combination,
D speaks before B.
A & D are adjacent.
$\Rightarrow$ A speaks before B.
Hence, option (d) viz. "A speak sometime before B speaks", will always be true.

3. e If E wants to speak in the second time slot, then according to the given conditions, following two combinations are possible.

(i) $\frac{C}{1}, \frac{E}{2}, \frac{G}{3}, \frac{F}{4}, \frac{D}{5}, \frac{A}{6}, \frac{B}{7}$

(ii) $\frac{C}{1}, \frac{E}{2}, \frac{G}{3}, \frac{F}{4}, \frac{A}{5}, \frac{D}{6}, \frac{B}{7}$

Because if C occupies slot 7, then condition II will not be fulfilled.

4. b If B speaks before F, then only statement which would be true out of the given options is 'G speaks in the sixth time slot', and one of that arrangement can be

$\frac{A}{1}, \frac{D}{2}, \frac{B}{3}, \frac{F}{4}, \frac{E}{5}, \frac{G}{6}, \frac{C}{7}$

5. d Using the given conditions that E speaks sometime before A speaks, we get the condition, 'F speaks sometime before B speaks', must be true.

6. b Using the given conditions and the condition given in the question and after making different combinations, we arrive at 'D speaks sometime before F speaks' will always be true.

For questions 7 to 10:

Using abbreviations for various names and classifying the given conditions, we get the following.

I Either O or V must be selected but neither V or S with O, i.e. VO and SO are not possible.

II. Either S or K or both SK must be selected. Using the given conditions, we get:

7. d If V is not selected, then O must be selected (according to condition I).
Now using condition II, V, S or K or SK must be selected along with O, but as given S cannot be with O. Therefore, K has to be there with O.
Hence, Om Prakash and Keshto must be selected.

8. e Using the given conditions, the combination of K, V and S is the only acceptable combination from the given choices.
Hint: Work with the choices.

9. e According to the given conditions, if S is selected, then V must be selected but not O. Therefore, V must be selected if S is selected.

10. d Another interpretation of the given conditions is that any pair without S, V, O and K cannot be among the selected ones. Therefore, out of the given options pair of Tuntun and Wahida will not be among the selected ones.

For questions 11 to 15:
The given information can be summarised in the table given below with the help of which rest of the questions can be solved very easily.

Actor	Actress	Director	Movie
Rakshay	Sareena	Cash/Kaam	Main Hoon/Hind
Susheel	Sareena	Cash/Kaam	Main Hoon/Hind
Rakshay	Naveena	Money	Kutty/Khoon
Maharukh	Pani	Money	Kutty/Khoon

11. c 12. a 13. b 14. d 15. d

For questions 16 to 20:
This question can best be solved if we use the given information in a systematic way. Proceeding logically on the basis of the given information, we arrive at the following table which helps us in solving the questions.

Person	Bank	Place	Subject
Ammar	IndusInd	Green Park	Mathematics
Bunty	ABN Amro	Hari Nagar	History
Chandroo	Allahabad	Rajendra Nagar	Physics
Daksh	SBI	Vivek Vihar	Geography
Ehsas	IndusInd	Hari Nagar	Geography
Fauji	HSBC	Green Park	Statistics
Gattoo	Bank of India	Vivek Vihar	History

16. c 17. b 18. e 19. a 20. e

For questions 21 and 22:
It is required to find the maximum number of persons who can be of same height.
From (I), F is not shorter than G. Hence F can be of the same height as G, or taller than G.
F can be of the same height as G (rejecting the possibility of F being taller than G).
Similarly from (II) and (III), G can be of the same height as H and H can be of the same height as I.
From (IV), I is shorter than J.
From (V), J is not shorter than K, so J can be taller than K, and K can be same height as F, G, H, I, L and M.

$I < F = H = G = K = L = M = J$ …(i)
OR
$I = F = H = G = K = L = M < J$ …(II)

21. d As explained above, F, G, H, I, K, L and M or F, H, G, K, L, M and J can be all of the same height at the maximum.

22. a Six other persons (F, G, H, K, L, and M) can be of same height as I at the most.

23. e From (i), it is clear that at most 6 people can be of same height as of J.

24. b From (i), it is clear that none of them is of same height as I.

For questions 25 to 28:
According the clue C, the five couples are: the Goyals; the two couples who bought model 6300, the couple who bought model 9600, and the couple who chose the golden travel bag. Two couples bought model 1100 (clue D). One of the Nokia 1100 buyers was the Goswamis (clue D). The Goswamis, then, must be the fifth couple in clue C, who chose golden travel bag. Also from clue C and D we can conclude that Goyals also purchase Nokia 1100 and they chose blue coloured travel bag. From clue F, we can say that Goswamis and Goyals are the two couples who chose travel bags of the same colour as of their mobile sets. So Goswamis chose golden mobile sets and travel bags and Goyals chose blue mobile and travel bags. From clue G, the colour of Bhaduri's mobile set and Bhargav's travel bags can be white only. From clue H, Bhargavs must have bought Nokia 9600 and chose silver coloured mobile sets. From clue E, colour of Walia's travel bag is also silver. The only remaining colour is black. So from clue E, colour of Walias mobile set as well as Bhaduri's travel bag must be black. Now we can compile the following table which contains all the information.

Last Name	Mobile Set		Travel Bag Colour
	Model No.	Colour	
Bhaduris	Nokia 6300	white	black
Bhargavs	Nokia 9600	silver	white
Goyals	Nokia 1100	blue	blue
Goswamis	Nokia 1100	golden	golden
Walias	Nokia 6300	black	silver

25. e Bhargavs had chosen the Nokia 9600.

26. c Goswamis had chosen golden travel bag.

27. e Both Walias and Bhaduris had bought the Nokia 6300 mobile set.

28. a Goyals bought blue colour mobile set.

29. e Checking the options.
Option (a): Ruhana works on Tuesday, Wednesday, Friday and Saturday. Here she is violating the additional information (II). So it is not possible.

Option (b): Ruhana works on Monday, Tuesday, Friday and Saturday. Here she is violating the additional information (II). So it is not possible.

Option (c): Juliya works on Tuesday, Wednesday and Thursday. So she is working on three consecutive days, which is violating the additional information (I).

Option (d): Fatina works on Monday, Tuesday, Thursday and Friday. Here she is again violation additional information (II), hence not possible.

Option (e): It satisfies all the restrictions given in the question. Hence possible.

30. a According to the question, we have to fill 14 positions. Out of these 14 positions, two counselors work on four days during the week. Other two counselors work on three days during the week. If only Noori and Juliya work on Wednesday, then they cannot work on four days during the week. So Ruhana and Fatina work on four days during the week. So the possible schedule is tabulated.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Case I	Ruhana, Fatina, Noori	Ruhana, Fatina	Noori, Juliya	Ruhana, Fatina	Noori, Juliya	Ruhana, Fatina, Juliya
Case II	Ruhana, Fatina, Juliya	Ruhana, Fatina	Noori, Juliya	Ruhana, Fatina	Noori, Juliya	Ruhana, Fatina, Noori

In both cases, Noori and Juliya work on Friday.

31. b The following cases are possible.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Case I	Fatina, Juliya	Noori, Ruhana	Ruhana, Juliya	Fatina, Juliya	Noori, Fatina	Noori, Ruhana
Case II	Fatina, Ruhana	Noori, Juliya	Ruhana, Juliya	Fatina, Ruhana	Noori, Fatina	Noori, Juliya

So out the given options, only option (b) is correct

For questions 32 to 35: With the given preliminary information provided we can make this table:

Name	Country	Sport	Annual Income (in Rs. crores)	Age (in years)
Sachin	Brazil			
Ronaldo			1.7	21
Dhanraj		Tennis		
Sampras	UK		2.5	28
Laker		Cricket		31

Since Sachin is not the oldest of the given players, therefore he is 34 yrs old and Dhanraj is 37years old.

Ronaldo is not from Australia or USA, so he is from India. Therefore, he plays Basket ball. Dhanraj is not from USA so he is from Australia.

Sachin's annual income is less than Rs.2.0 crore so it can be either Rs.1.5 or Rs.1.3 crores but his annual income is not the least so his income is Rs.1.5 crore.

With this additional information we can make this table:

Name	Country	Sport	Annual Income (in Rs. crores)	Age (in years)
Sachin	Brazil	Hockey	1.5	34
Ronaldo	Basketball	India	1.7	21
Dhanraj	Australia	Tennis	1.3/2.1	37
Sampras	UK	Football	2.5	28
Laker	USA	Cricket	21./1.3	31

32. c Sachin plays Hockey.

33. c Dhanraj is from Australia.

34. a Dhanraj is the oldest.

35. b If Dhanraj earns Rs. 2.1 crore per annum then Sachin earns 1.5 crore.