Non-CAT Reasoning – 2

LRDI - 16

CEX-D-0288/18

Number of questions : 35

Directions for questions 1 to 3: Answer the questions on the basis of the information given below.

In each of these questions a group of letters is given followed by four combinations of digits and symbols numbered (i), (ii), (iii) and (iv). Letters are to be coded by digits/symbols as per the scheme and the conditions given below. Serial number of the combination of digits/symbols that represents the group of letters is your answer.

| H	A	R	U	D	I	T	P	O	K	V	S	Y	C	E
8	%	2	&	3	6	4	#	7	$	5	*	@	1	9

(i)   If the first and the last letter is a vowel, both are to be coded as '£'.
(ii) If the first letter is a consonant and the last letter is a vowel their codes are to be interchanged.
(iii) If the first letter is a vowel and the last letter is a consonant, both are to be coded as the code for consonant.
(iv) If first as well as last letter is a consonant and in between there are two or more vowels, then all the vowels are coded as ' δ '.

1.   YPCRHU
      (1) @#128&   (2) &#128@   (3) @1#2$&   (4) &1#82@

2.   DETORK
      (1) 39472$ (2) 3 δ 4 δ %$ (3) 3 δ 6 δ 2$ (4) 3 δ 4 δ 2$

3.   IVHCDA
      (1) £5813£   (2) 65813%   (3) £5893£   (4) £5413%

Directions for questions 4 and 5: In each of the following questions there are two sets of figures.

The figures given above are "Problem figures" and those given under them are "Answer Figures". A series is established if one of the answer figures is placed in place of question mark. You have to select that option from the answer figures which will continue the series given in the "Problem Figures" and mark it as the answer.
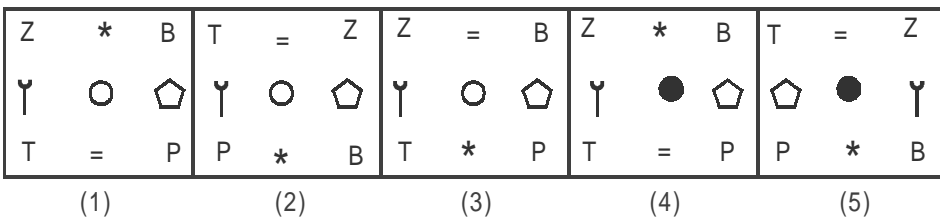
4. **Problem Figures**

Answer Figures

(1)   (2)   (3)   (4)   (5)
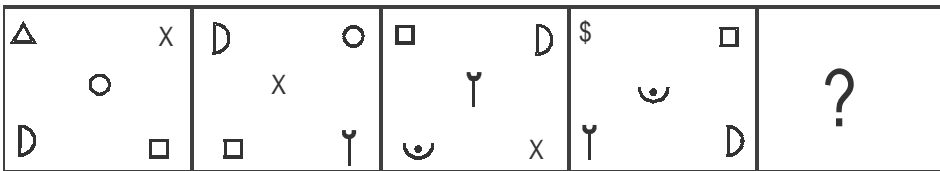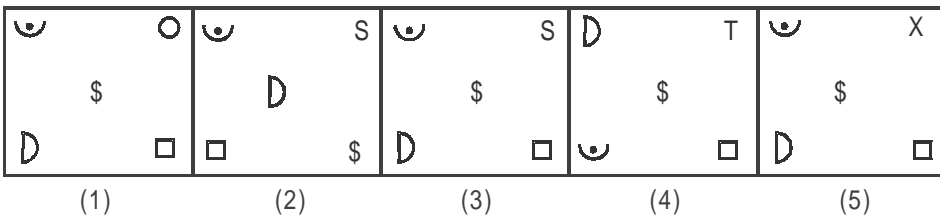
5. **Problem Figures**

Answer Figures

(1)   (2)   (3)   (4)   (5)

6. Complete the series: X3G, V8J, S24N, O48Q, J120U, _____
   (1) C170X   (2) D168X   (3) C169Z   (4) D168Y

7. Complete the series: D1G, K3N, R4U, Y27B, F16I, _____
   (1) N243P   (2) M32P   (3) M729Q   (4) M243P

8. In a certain language TRIANGLE is written as VOTMZRIG. Then SQUARE will be written as:
   (1) VIZFJH   (2) HJFZIV   (3) VIZFIH   (4) VIYFIH

9. In a certain code COMMA is coded as 19225, and YELLOW as 764490, then WELCOME will be coded as:
   (1) 0645926   (2) 0641956   (3) 0621925   (4) None of these

Direction for questions 10 to 14: Answer the questions on the basis of the information given below.

These questions are based on the following pie chart which shows the viewership of different knowledge based channels (in degree) in the month of December, 2013. There are no overlaps in viewership of channels.
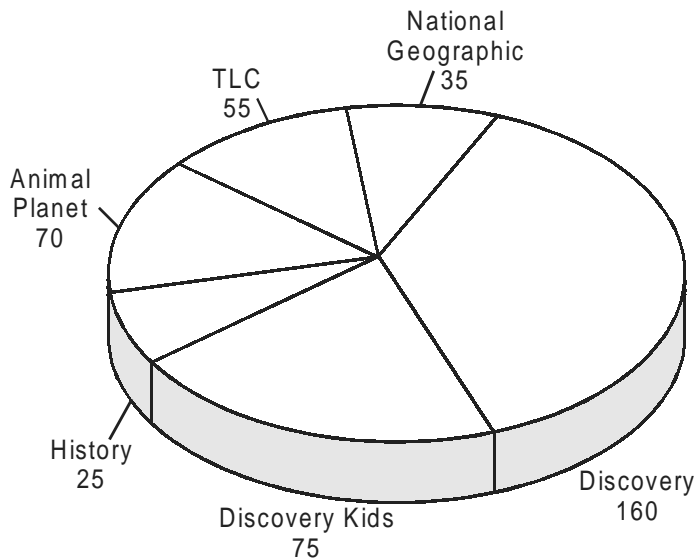
10. During the given period, viewership of how many channels is more than 25% of the total viewership?
    (1) 1   (2) 2   (3) 3   (4) 4

11. If 70,000 people watched National Geographic on an average per day in December 2013, then how many more people watched Discovery than History on an average per day for the same period?
    (1) 360000   (2) 36000   (3) 270000   (4) None of these

12. If the viewership of TLC on an average was 55,000 per day, then what was the viewership for all the channels on an average per day?
    (1) 240000   (2) 410000   (3) 450000   (4) None of the above

13. If the viewership of Discovery Kids channel for the first half of December is half of that of the second half of December, then what is the ratio of viewership of Discovery Kids for the second half to that of TLC for the whole month?
    (1) 10 : 11   (2) 15 : 17   (3) 12 : 17   (4) 15 : 19

14. By mistake the viewership of Discovery Kids has been underquoted by 25%. If this mistake is corrected then what is the correct share of viewership of Discovery?
(1) 20% (2) 27.5% (3) 32.5% (4) 22.47%

Direction for questions 15 to 19: Answer the questions on the basis of the information given below.

There are two circular tables in a room. Six Americans - A1, A2, A3, A4, A5, A6 are sitting at one table and six Germans - G1, G2, G3, G4, G5, G6 are sitting at the other table. A1 and A4 are sitting opposite to each other. A2 and A5 are also sitting opposite to each other. A3 sits to the right of A4. A2 is the only person who can translate English to German language; A3 is the only person who can translate German language to English, and none of them does the vice-versa, unless so stated. A5 and A6 sit adjacent to each other. Similarly, G1 sits opposite to G4; G6 sits opposite to G3 and G5 sits to the right of G6. G2 and G4 sit adjacent to G3. On the table, any person can talk to another person, only as stated below. The only conversations that took place are as given below:

A1 spoke to A2; A2 to G6; G6 to A3; G6 to G5; G5 to G4; G4 to G3; G3 to G2; G2 to G1; A3 to A4; A4 to A5; A6 to A1; G1 to G6; and A5 to A6.

The conversations are one-sided i.e., A1 spoke to A2 implies that A1 is the speaker and A2 is the listener and not vice-versa.

15. If the person to the right of A1 wants to send a message to the person sitting to the left of G2, then the message has to pass through how many persons? (Excluding the first and the last)
(1) 7 (2) 5 (3) 6 (4) None of these

16. If A3 wants to send a message to G1, then how many persons must the message pass through? (Excluding the first and the last)
(1) 6 (2) 4 (3) 10 (4) None of these

17. If the person sitting to the right of A2 wants to send a message to the person sitting two places to the left of A4, then what is the minimum number of people involved between them? (Excluding the two people)
(1) 6 (2) 10 (3) 4 (4) None of these

18. If the people can now pass messages to the person sitting opposite to them as well then what is the minimum number of people involved if A_3 has to pass a message to G_1 (excluding the first and the last person)
(1) 3 (2) 6 (3) 7 (4) None of these

19. The conversations are now reversed i.e 'A_1 spoke to A_2' now becomes 'A_2 spoke to A_1' and so on. Also the translating skills of A_2 and A_3 are reversed, then which of the given statements would be true?
(1) A5 can pass a message to G3 using 5 people between them
(2) A5 can pass a message to G3 using 4 people between them
(3) A5 can pass a message to G3 using 3 people between them
(4) A5 can pass a message to G3 using 2 people between them

Directions for questions 20 to 25: Answer the questions on the basis of the information given below.

Table: Production of Major Minerals and Metals (Million Tonnes)

Year	Aluminium	Coal	Copper	Gold	Iron Ore
2005	69	91	71	15	100
2006	75	88	75	18	120
2007	81	97	79	21	102
2008	98	107	88	25	131
2009	93	110	92	24	143
2010	99	116	97	20	154
2011	105	122	103	25	163

20. Which mineral/metal witnessed highest growth rate in production from 2005 to 2011?
    (1) Iron Ore   (2) Aluminium   (3) Gold   (4) Copper

21. Which year has witnessed highest absolute increase in total production of minerals and metals?
    (1) 2006   (2) 2008   (3) 2011   (4) None of these

22. Highest annual growth rate in production is recorded in
    (1) Iron Ore in 2008   (2) Gold in 2011   (3) Aluminium in 2008   (4) Gold in 2006

22. If annual average growth rate in production exhibited during 2006 to 2011 continues for next 4 years, then what will be the approximate production of aluminium in the year 2015?
    (1) 125 million tonnes   (2) 140 million tonnes   (3) 155 million tonnes   (4) 160 million tonnes

24. In which year is the proportion of copper production in the total mineral and metal production the highest?
    (1) 2010   (2) 2008   (3) 2009   (4) 2007

25. Which mineral/metal witnessed the minimum growth rate in production from 2006 to 2010?
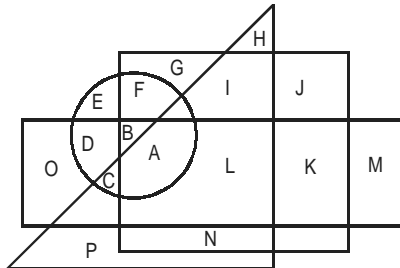   A Aluminium   (2) Coal   (3) Copper   (4) Gold

26.
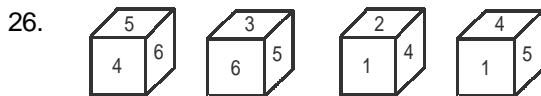
What will be the number on the face opposite to 3?
    (1) 1   (2) 2   (3) 4   (4) 5

Directions for questions 27 and 28: Answer the questions on the basis of the information given below.

Square = Research scholar
Rectangle = Faculty member
Triangle = American
Circle = Indian

27. Which of the following is a faculty member as well as research scholar but not American or Indian?
   (1) L   (2) N   (3) K   (4) G

28. Which of the following is Indian American and faculty member but not research scholar?
   (1) A   (2) B   (3) C   (4) F

Directions for questions 29 and 30: Answer the questions on the basis of the information given below.

Five girls Rama, Sudha, Tara, Uma and Veena share an apartment and have distributed tasks among themselves. One girl makes breakfast each day, Monday through Friday and cooks one of the five dishes – upama, dosa, idli, uttapam and paratha.

Veena does not make uttapam and does not cook on Tuesday.
Sudha makes parathas but not on Monday or Friday.
Upama is made on Thursday.
Tara makes her dish, which is not uttapam, on Wednesday.
Idli is made on Friday but not by Uma.
Rama cooks on Monday.

29. What does Tara cook on Wednesday?
   (1) Upama   (2) Paratha   (3) Idli   (4) Dosa

30. On which day does Uma prepare her dish?
   (1) Monday   (2) Tuesday   (3) Thursday   (4) Friday

Directions for questions 31 to 35: Answer the questions on the basis of the information given below.

After receiving the disturbing news of falling standards the Supreme Council of Confederation of five kingdoms is considering to conduct joint entrance examination for all students in these kingdoms for Vaidya Ratna course. As a first step, it has been decided to review the past five year data about the individual entrance examination of the kingdoms so that an appropriate action can be taken. Study the table given below and answer the questions.

		Anga	Banga	Chedi	Dwarka	Gandhar
2012	Appeared	5000	4000	2600	6000	4500
	Passed	850	640	468	780	765
2013	Appeared	5500	4500	2500	8000	3500
	Passed	770	810	275	1120	595
2014	Appeared	6000	6500	1900	6500	4500
	Passed	1200	1235	266	715	810
2015	Appeared	5000	5500	2500	5500	4000
	Passed	750	880	275	935	520
2016	Appeared	7000	6000	2000	7000	6000
	Passed	1190	660	400	1330	1200

31. What is the overall pass percentage from Anga kingdom for all the years together?
    (1) 16.7   (2) 17.5   (3) 18.7   (4) 15.5

32. In which of the following years, total number of candidates passed from all the kingdoms is lowest?
    (1) 2012   (2) 2013   (3) 2014   (4) 2015

33. In which of the following years, Banga kingdom recorded highest pass percentage?
    (1) 2012   (2) 2013   (3) 2014   (4) 2016

34. What is the overall pass percentage of all the kingdoms together in the year 2013?
    (1) 13.88   (2) 14.88   (3) 15.88   (4) 16.88

35. Highest number of candidates passed are from which of the following kingdoms for all the years together?
    (1) Anga   (2) Banga   (3) Gandhar   (4) Dwarka

Visit "Test Gym" for taking Topic Tests / Section Tests on a regular basis.

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

1. 2   YPCRHU is coded as &#128@.

2. 4   DETORK is coded as 3 δ 4 δ 2$.

3. 1   IVHCDA is coded as £5813£.

4. 3   In the first step, the center element exchanges position with the upper right corner element. The remaining elements move one side length in CW direction and a new element is added at the lower right corner position. In the second step, the center element exchanges position with the lower right corner element. The remaining elements move one hand in CW direction and a new element is added at the upper left corner position. The sequence repeats in the same manner in the CW direction.

5. 2   Each corner element moves 1, 2, 3 and 4 side length in the first, second, third and fourth step respectively in CW direction. Each element in the middle row moves half side length in the CW direction and the element coming at the center position is replaced by a new element. The elements at the middle position along each side move one step in CW direction.

6. 2   The series is moving as:
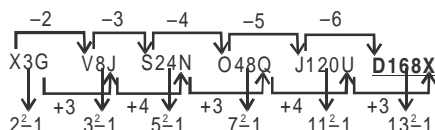
Hence, the missing term is D168X.

7. 4
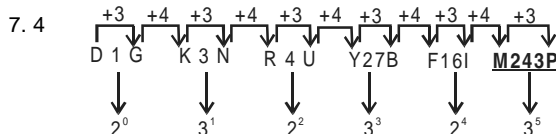
Hence, the missing term is M243P.

8. 1   Letters are the complementary pairs if we write the coding letters in reverse order.
Hence, the code of SQUARE is VIZFJH.

9. 4   Comparing the words, we get
C = 1, O = 9, M = 2, A = 5, Y = 7, E = 6, L = 4 and W = 0
Hence, the code for WELCOME will be 0641926.

10. 1   Viewership of different channels is tabulated below:

Channel	Viewership
National Geographic	8.33%
TLC	13.09%
Animal Planet	16.67%
History	5.95%
Discovery Kids	17.86%
Discovery	38.09%

From the above table, it is clear that only Discovery channel has more than 25% of the total viewership.

11. 3   Total viewship $= 70000 \times \dfrac{420}{35} = 840000$

Viewers of Discovery − Viewers of History

$= \left(\dfrac{160}{420} - \dfrac{25}{420} \right) \times 840000 = 270000$.

12. 4   Viewers for all the channels on an average per day
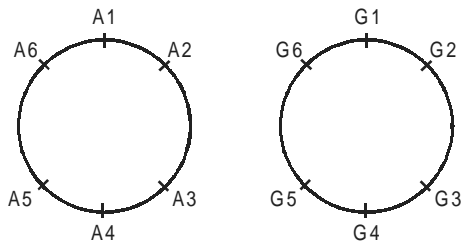
$= 55000 \times \dfrac{420}{55} = 420000$.

13. 1   Let the total viewership for all the channels be a.

Then, the required ratio $= \dfrac{\dfrac{2}{3} \times \dfrac{75}{420} \times a}{\dfrac{55}{420} \times a} = \dfrac{10}{11}$

14. 4   Correct viewership $= 75 \times \dfrac{4}{3} = 100$

Share of discovery kids $= \dfrac{100}{445} \times 100 = 22.47\%$.

For questions 15 to 19:

15. 2   A6 → A1 → A2 → G6 → G5 → G4 → G3
     So, message has to pass through 5 persons excluding A6 and G3.

16. 3   A3 → A4 → A5 → A6 → A1 → A2 → G6 → G5 → G4 → G3 → G2 → G1
     So, message has to pass through 10 persons excluding A3 and G1.

17. 4   A1 → A2 → G6 → A3 → A4 → A5 → A6
     So, message has to pass through 5 persons excluding A1 and A6.

18. 2   A3 → A6 → A1 → A2 → G6 → G3 → G2 → G1
     So, message has to pass through 6 persons excluding A3 and G1.

19. 1   If the conversations are reversed, then
     A5 → A4 → A3 → G6 → G1 → G2 → G3
     Hence, A5 can pass a message to G3 using 5 people between them.

20. 3 $\text{Growth Rate} = \dfrac{\text{Final Value} - \text{Initial Value}}{\text{Initial Value}} \times 100$

     $\text{Iron Ore} = \dfrac{163 - 100}{100} \times 100 = 63\%$

     $\text{Aluminium} = \dfrac{105 - 69}{69} \times 100 = \dfrac{36}{69} \times 100 \approx 52\%$

     $\text{Gold} = \dfrac{25 - 15}{15} \times 100 = \dfrac{10}{15} \times 100 = 66.67\%$

     $\text{Copper} = \dfrac{103 - 71}{71} \times 100 = \dfrac{32}{71} \times 100 \approx 45\%$

     Hence, Gold witnessed highest growth rate in production from 2005 to 2011.

21. 2   The given information can be tabulated as:

Year	Total Production (in million tonnes)	Absolute increase (in million tonnes)
2005	346	
2006	376	30
2007	380	4
2008	449	69
2009	462	13
2010	486	24
2011	518	32

Hence, the highest absolute increase in total production was witnessed in the year 2008.

22. 1 $\text{Iron Ore in 2008} = \dfrac{131 - 102}{102} \times 100 = \dfrac{29}{102} \times 100 \approx 28\%$

     $\text{Gold in 2011} = \dfrac{25 - 20}{20} \times 100 = \dfrac{5}{20} \times 100 = 25\%$

     $\text{Aluminium in 2008} = \dfrac{98 - 81}{81} \times 100 = \dfrac{17}{81} \times 100 \approx 21\%$

     $\text{Gold in 2006} = \dfrac{18 - 15}{15} \times 100 = \dfrac{3}{15} \times 100 = 20\%$

     Hence, Iron Ore in 2008 has the highest annual growth rate in production.

23. 2   Annual average growth rate during 2006 to 2011 for

     $\text{Aluminium} = \dfrac{1}{5} \times \dfrac{105 - 75}{75} \times 100 = 8\%$

     Let the production of Aluminium in 2015 be 'A' million tonnes.
     Annual average growth rate during 2011 to 2015 for

     $\text{Aluminium} = \dfrac{1}{4} \times \dfrac{A - 105}{105} \times 100 = 8\%$

     $\Rightarrow A = 105 + \dfrac{8 \times 4 \times 105}{100} = 138.6$ million tonnes

     Hence, the correct option is (B).

24. 4   Percentage of Copper production in total minerals for

     $2010 = \dfrac{97}{486} \times 100 \approx 20\%$

     $2008 = \dfrac{88}{449} \times 100 \approx 19.6\%$

     $2009 = \dfrac{92}{462} \times 100 \approx 19.9\%$

     $2007 = \dfrac{79}{380} \times 100 \approx 20.8\%$

25. 4   Growth rates in production from 2006 – 2010 for

Aluminium $= \dfrac{99-75}{75} \times 100 = \dfrac{24}{75} \times 100 \approx 32\%$

Coal $= \dfrac{116-88}{88} \times 100 = \dfrac{28}{88} \times 100 \approx 31.8\%$

Copper $= \dfrac{97-75}{75} \times 100 = \dfrac{22}{75} \times 100 \approx 30\%$

Gold $= \dfrac{20-18}{18} \times 100 = \dfrac{2}{18} \times 100 = 11.11\%$

Hence, Gold witnessed the minimum growth rate in production from 2006 to 2010.

26. 3   In a cube, each face has four adjacent faces and one opposite face. Among the given figures, we can observe that the adjacent faces to 4 are 5, 6, 1 and 2. Hence, 4 should be opposite to 3.

For questions 27 and 28:
Research scholars are A, B, F, G, I, L, J, K and N.
Faculty Members are O, D, C, B, A, L, K and M.
Americans are P, N, C, A, L, I and H.
Indians are A, B, C, D, E and F.

27. 3   Those who are faculty members as well as research scholars are A, B, L and K, out of whom A and L are both American and Indian and B is an Indian only. Hence, K is neither Indian nor American but faculty member as well as a research scholar.

28. 3   Those who are Indian American are A and C, out of whom only C is not a research scholar but a faculty member.

For questions 29 and 30:

The correct order of Day-Girl-Dish is as follows:

Day	Girl	Dish
Monday	Rama	Uttapa
Tuesday	Sudha	Paratha
Wednesday	Tara	Dosa
Thursday	Uma	Upama
Friday	Veena	Idli

29. 4   Dosa

30. 3   Thursday

31. 1   Overall pass percentage for Anga

$= \dfrac{\text{Total Pass (all years)}}{\text{Total Appeared (all years)}} \times 100$

$= \dfrac{850+770+1200+750+1190}{5000+5500+6000+5000+7000} \times 100$

$= \dfrac{4760}{28500} \times 100 = 16.7\%$

32. 4   The total number of candidates passed in the given years is calculated as:

Year	Number of Candidates
2012	3503
2013	3570
2014	4226
2015	3360

Hence, total number of candidates passed from all the kingdoms is the lowest for the year 2015.

33. 3   The pass percentage of Banga kingdom for the given years =

In 2012 = $\dfrac{640}{4000} \times 100 = 16\%$

In 2013 = $\dfrac{810}{4500} \times 100 = 18\%$

In 2014 = $\dfrac{1235}{6500} \times 100 = 19\%$

In 2016 = $\dfrac{660}{6000} \times 100 = 11\%$

Hence, it is the highest for 2014.

34. 2   Overall pass percentage for 2013 of all kingdoms

$= \dfrac{770+810+275+1120+595}{5500+4500+2500+8000+3500} \times 100$

$= \dfrac{3570}{24000} \times 14.88\%$.

35. 4   The total number of candidates passed in the given kingdoms can be calculated as:
Anga = 4760, Gandhar = 3890
Banga = 4225, Dwarka = 4880
Hence, it is the highest for Dwarka.