

## CMC Analytical Reasoning

(1-5) steps problem There are six steps that lead from the first to the second floor.

No two people can be on the same step.

Mr A is two steps below Mr C

Mr B is a step next to Mr D

Only one step is vacant ( No one standing on that step ) Denote the first step by step 1 and second step by step 2 etc.

1. If Mr A is on the first step, Which of the following is true?  
(A) Mr B is on the second step  
(B) Mr C is on the fourth step.  
(C) A person Mr E, could be on the third step  
(D) Mr D is on higher step than Mr C.  
Ans : (D)
2. If Mr E was on the third step & Mr B was on a higher step than Mr E which step must be vacant  
(A) step 1 (B) step 2 (C) step 4 (D) step 5 (E) step 6 Ans : (A)
3. If Mr B was on step 1, which step could A be on?  
(A) 2&e only (B) 3&5 only (C) 3&4 only (D) 4&5 only (E) 2&4 only  
Ans : (C)
4. If there were two steps between the step that A was standing and the step that B was standing on, and A was on a higher step than D, A must be on step  
(A) 2 (B) 3 (C) 4 (D) 5 (E) 6 Ans: (C)
5. Which of the following is false
  - i. B&D can be both on odd-numbered steps in one configuration
  - ii. In a particular configuration A and C must either both an odd numbered steps or both an even-numbered steps
  - iii. A person E can be on a step next to the vacant step.  
(A) i only (B) ii only (C) iii only Ans : (C)Swimmers problem (6 - 9 )

Six swimmers A B C D E F compete in a race. There are no ties. The out comes are as follows.

  1. B does not win.
  2. Only two swimmers separate E & D
  3. A is behind D & E
  4. B is ahead of E, with one swimmer intervening
  5. F is a head of D
6. Who is fifth (A) A (B) B (C) C (D) D (E) E Ans : (E)
7. How many swimmers separate A and F "  
(A) 1 (B) 2 (C) 3 (D) 4 (E) not determinable from the given info. Ans :  
(D)
8. The swimmer between C & E is  
(A) none (B) F (C) D (D) B (E) A Ans : (A)
9. If the end of the race, swimmer D is disqualified by the Judges then swimmer B finishes in

which place

(A) 1 (B) 2 (C) 3 (D) 4 (E) 5 Ans : (B).

Chimney problem ( 10 - 14 )

Five houses lettered A,B,C,D, & E are built in a row next to each other. The houses are lined up in the order

A,B,C,D, & E. Each of the five houses has a coloured chimney. The roof and chimney of each house must be

painted as follows.

1. The roof must be painted either green, red, or yellow.
2. The chimney must be painted either white, black, or red.
3. No house may have the same color chimney as the color of roof.
4. No house may use any of the same colors that the every next house uses.
5. House E has a green roof.
6. House B has a red roof and a black chimney

10. Which of the following is true ?

- (A) At least two houses have black chimney.
- (B) At least two houses have red roofs.
- (C) At least two houses have white chimneys
- (D) At least two houses have green roofs
- (E) At least two houses have yellow roofs

Ans: (C)

11. Which must be false ?

- (A) House A has a yellow roof
- (B) House A & C have different colour chimney
- (C) House D has a black chimney
- (D) House E has a white chimney
- (E) House B & D have the same color roof.

Ans: (B)

12. If house C has a yellow roof. Which must be true.

- (A) House E has a white chimney
- (B) House E has a black chimney
- (C) House E has a red chimney
- (D) House D has a red chimney
- (E) House C has a black chimney

Ans: (A)

13. Which possible combinations of roof & chimney can house

- I. A red roof & a black chimney
- II. A yellow roof & a red chimney
- III. A yellow roof & a black chimney

(A) I only (B) II only (C) III only (D) I & II only (E) I&II&III Ans: (E)

14. What is the maximum total number of green roofs for houses Ans: (C)

15. There are 5 red shoes, 4 green shoes. If one draw randomly a shoe what is the probability of getting red shoe is  $\frac{5}{9}$

16. What is the selling price of a car? cost of car is Rs 60 & profit 10% profit over selling price

Ans : Rs 66/-

17.  $\frac{1}{3}$  of girls,  $\frac{1}{2}$  of boys go to canteen. What factor and total number of classmates go to canteen  
Ans: cannot be determined
18. Price of a product is reduced by 30%. What percentage should be increased to make it 100%  
Ans: 42.857%
19. There is a square of side 6cm. A circle is inscribed inside the square. Find the ratio of the area of circle to square.  $r=3$  circle/square =  $\frac{11}{14}$
20. Two candles of equal lengths and of different thickness are there. The thicker one will last of six hours. The thinner 2 hours less than the thicker one. Ramesh light the two candles at the same time. When he went to bed he saw the thicker one is twice the length of the thinner one. For how long did Ramesh lit two candles  
.Ans: 3 hours.
21.  $M/N = 6/5$   $3M+2N = ?$  Ans: cannot be determined
22.  $p/q = 5/4$   $2p+q = ?$  cannot determined.
23. If PQRS is a parallelogram what is the ratio of triangle PQS & parallelogram PQRS Ans: 1:2
24. Cost of an item is Rs 12.60 & profit is 10% over selling price what is the selling price Ans: Rs 13.86/-
25. There are 6 red shoes & 4 green shoes. If two of red shoes are drawn what is the probability of getting red shoes Ans:  $\frac{6c2}{10c2}$
26. 15 lts of water containing 20% alcohol, then added 5 lts of water. What is % alcohol.  
Ans : 15%
27. A worker pay 20/- day, he works 1,  $\frac{1}{3}$ ,  $\frac{2}{3}$ ,  $\frac{1}{8}$ ,  $\frac{3}{4}$  in a week. what is the total amount paid for that worker  
Ans : 57.50
28. The value of x is between 0 & 1 which is the larger? A) x B)  $x^2$  C) -x D)  $\frac{1}{x}$  Ans : (D)

#### DATA SUFFICIENCY

- (A) (1) alone sufficient  
(B) (2) alone sufficient  
(C) both together are sufficient  
(D) (1) alone & (2) alone sufficient  
(E) information not sufficient
29. A man of 6 feet tall is standing near a light on the top of a pole. what is the length of the shadow cast by the man.  
1) The pole is 18 feet high  
2) The man is 12 feet high Ans: (E) (Information is insufficient)
30. It is 25 miles from C to B Ans: (E)
31. Was Melissa Brown's novel published?  
1). If Melissa Brown's novel was published she would receive at least \$1000 in royalties during 1978  
2). Melissa Brown's income for 1978 was over \$1000  
Ans: (E)

32. Does every bird fly?

- 1) Tigers do not fly.
- 2) Ostriches do not fly

Ans: (B)

33. How much does John weigh? Jim weighs 200 pounds.

- 1) Tom's weight plus Moe's weight equal to John's weight.
- 2) John's weight plus Moe's weight equal to twice Tom's weight.

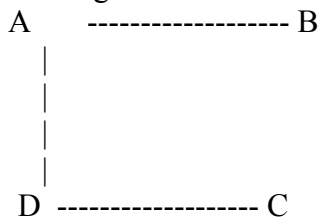
Ans: (C)

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- 1) Tom's weight plus Moe's weight equal to John's weight.
- 2) John's weight plus Moe's weight equal to twice Tom's weight.

Ans: (C)

35. Is the figure ABCD a rectangle



(1).  $x=90$ (degrees)

(2).  $AB=CD$

Ans: (E)

36. Find  $x+2y$

- 1).  $x+y=10$
- 2).  $2x+4y=20$

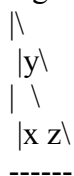
Ans: (B).

37. Is  $x$  greater than  $y$

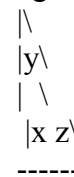
- 1)  $x=2k$
- 2)  $k=2y$

Ans: (E)

38. Is angle BAC a right angle



39. Is angle BAC a right angle



(1).  $x=2y$

(2)  $y=1.5z$

Ans: (E)

40. A piece of string 6 feet long is cut into three smaller pieces. How long is the longer of the three pieces?

- 1). Two pieces are the same length.
- 2) One piece is 3 feet 2 inches long

Ans: (B)

41. How many rolls of wall paper necessary to cover the walls of a room whose floor and ceiling are rectangles 12 feet wide and 15 feet long

- 1). A roll of paper covers 20 sq feet
- 2). There are no windows in the walls

Ans : (E)

42.  $x$  and  $y$  are integers that are both less than 10. Is  $x > y$ ?

- 1).  $x$  is a multiple of 3
- 2).  $y$  is a multiple of 2

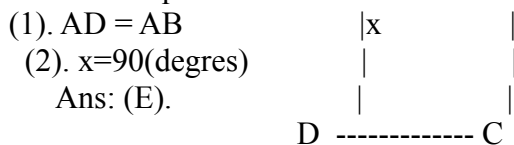
Ans: (E).

43. Fifty students have signed up for at least one of the courses GERMANI 1 & ENGLISH 1, how many of the 50 students are taking GERMANI 1 but not ENGLISH 1.?

- 1). 16 students are taking GERMANI 1 & ENGLISH 1
- 2). The number of students taking ENGLISH 1 but not GERMANI 1 is the same as the number of students taking GERMANI 1.

Ans: (C)

44. Is ABCD a square ?



45. How much cardboard will it take to make a rectangular box with a lid whose base has length 7 inches.

- 1 . The width of the box 5 inches
- 2 . The height of the box will be 4 inches

Ans: (C).

46. Did ABC company make profit in 1980?

- 1). ABC company made a profit in 1979.
- 2). ABC company made a profit in 1981.

Ans: (E).

47. How much is Janes salary?

- 1). Janes salary is 70% of John's salary
- 2). John's salary is 50% of Mary's salary

Ans: (E).

48. Is  $x > 1$

- 1)  $x + y = 2$
- 2)  $y < 0$

Ans: (c)

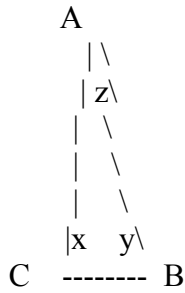
49. How many of the numbers  $x$  and  $y$  are positive? Both  $x$  and  $y$  are less than 20

- 1)  $x$  is less than 5
- 2)  $x + y = 24$

Ans: (B)

50. Is the angle ACB is right angle

- (1).  $y=z$
- (2).  $(AC)^2+CB^2=AB^2$



Ans: (B).

51. How far it from town A to town B? Town C is 12 miles east of town A

- 1). Town C is south of town B
- 2). It is 9 miles from town B to town C

Ans : (C)

52. A rectangular field is 40 yards long. Find the area of the field.

- 1). A fence around the boundary of the field is 140 yards long
- 2). The field is more than 20 yards width

Ans: (A).

53. An industrial plant produces bottles. In 1961 the number of bottles produced by the plant was twice the number of produced in 1960. How many bottles were produced altogether in the year 1960, 61, & 62

- 1). In 1962 the number of bottles produced was 3 times the number of produced in 1980
- 2). In 1963 the number of bottles produced was one half the total produced in the years 1960, 1961, 1962.

Ans: (E).

54. Is  $xy > 1$  ?  $x$  &  $y$  are both positive

1.  $x$  is less than 1
2.  $y$  is greater than 1

Ans : (E)

55. Is it a Rambus

- (1). All four sides are equal / / / /
- (2) Total internal angle is / / / /  
360 / /

Ans: (E)

56. How many books are in the book shelf

- 1) The book shelf is 12 feet long
- 2). The average weight of each book is 1.2 pound

Ans: (E).

57. What is the area of circle?

- 1). Radius  $r$  is given
- 2). Perimeter is 3 times the area

Ans: (A).

ARITHMETIC

58. Total distance is 120 km . Going by 60kmph and coming back by 40kmph what is the average speed?

Ans: 48kmph

59. A school has 30% from MAHARASTRA. Out of this 20% from BOMBAY students. Find the total percentage of BOMBAY Ans: 6%
60. An equilateral triangle of side 3 inch is given. How many equilateral triangles of side 1 inch can be formed from it Ans : 9
61.  $A/B = 3/5$   $15A = ?$ , Ans : 9B
62. Each side of a rectangle is increased by 100% . How much the percentage of area will be increased  
Ans : 300%
63. Perimeter of the back wheel = 9 feet, front wheel = 7 feet on a certain distance the front wheel gets 10 revolutions more than back wheel . what is the distance? Ans : 315 feet.
64. Perimeter of front wheel = 30, back wheel = 20. If front wheel revolves 240 times. How many revolutions will the back wheel take? Ans: 360 times
65. 20% of 6 liter solution and 60% of 4 liter solution is mixed What percentage of the mixture of solution  
Ans: 36%
66. City A population is 68000, decreasing at a rate of 80 per year City B having population 42000 increasing at rate of 120 per year. In how many years both the cities will have same population  
Ans: 130 years
67. Two cars, 15 km apart one is turning at a speed of 50kmph other at 40kmph . How will it take to two cars meet. Ans 3/2 hours
68. A person wants to buy 3 paise and 5 paise stamps costing exactly one rupee. If he buys which of the following number of stamps. he wont able to buy 3 paise stamps Ans: 9
69. There are 12 boys and 15 girls, How many different dancing groups can be formed. Ans: 180
70. Which of the following fractions is less than  $1/3$   
(1)  $22/62$  (2)  $15/46$  Ans:  $15/46$
71. Two circles , one circle is inscribed and another circle is circumscribed over a square. What is the ratio of area of inner to outer circle. Ans: 1 : 2  
Plumber problem ( 15 - 17)  
Miss Dean wants to renovate her house. She hires a plumber, a carpenter, a painter an electrician and interior decorator. The work to be finished in one working (Monday - Friday) . Each worker will take the full day to do his job. Miss Dean permit only one person to work each day.  
I. The painter can work only after the plumber and the carpenter have finished their jobs  
II. The interior decorator must do his job before the electrician.  
III. The carpenter cannot work on Monday or Tuesday
72. If the painter work on Thursday, which one of the following alternatives is possible?  
(A) The electrician works on Tuesday.  
(B). The electrician works on Friday.  
(C) The interior decorator works after the painter does.  
(D). The painter works on consecutive days  
(E). Miss Dean cannot fit all of the workers into schedule Ans: (B).
73. If the painter works on Friday which of the following must be false?

- (A) . The carpenter may works on Wednesday
- (B). The carpenter and the electrician may work on consecutive days
- (C). If the carpenter works on Thursday, the electrician has to work on wednesday
- (D). The plumber may work before the electrician does
- (E). The electrician may work on Tuesday

Ans: (C).

74. Which argument is possible?

- (A). The electrician will works on Tuesday and the interiordecorator on Friday
- (B). The painter will work on wednesday and plumber on thursday
- (C). The carpenter will works on Tuesday and the painter on Friday
- (D). The painter will work on Monday and the carpenter on Thursday
- (E). The carpenter will work on Wednesday and the plumber on Thursday

Ans: (E).