

SEAL

$$\frac{10!}{4!6!} = \frac{10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{4 \times 3 \times 2 \times 1 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1} = \frac{10 \times 9 \times 8 \times 7 \times 5}{4 \times 3 \times 2 \times 1} = 10 \times 3 \times 7 = 210$$

39) A box contains 10 mobile phones, out of which 4 are defective. Two mobile phones are chosen at random from this box. The probability that at least one of these is defective is :

$$\frac{10C_2}{10C_2} = \frac{45}{45} = 1$$

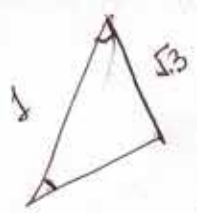
- (A) $\frac{3}{4}$
- (B) $\frac{4}{3}$
- (C) $\frac{1}{3}$
- (D) $\frac{2}{3}$

40. If the height of a pole is $\sqrt{3}$ meters and the length of its shadow is 1 meter. Find the angle of elevation of the sun.

$$\frac{1}{\sqrt{3}} = \tan \theta$$

- (A) 30°
- (B) 45°
- (C) 60°
- (D) None of the above

TS : 14/(P)/II—B



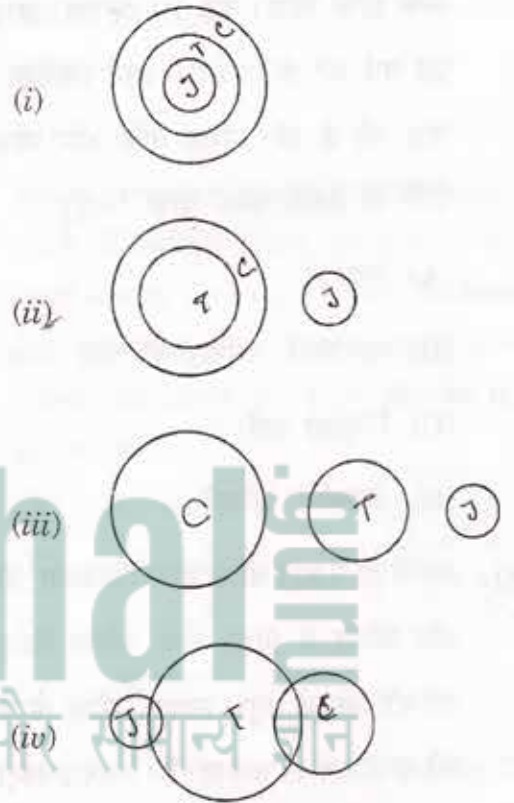
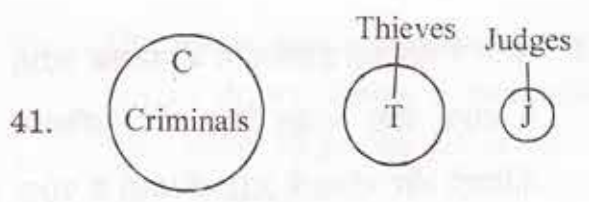
20

$\sin \theta = \frac{\sqrt{3}}{2}$

$\sin \theta = \frac{\sqrt{3}}{2}$

$\theta = 60^\circ$

Angle	sin	cos
0°	0	1
30°	$1/2$	$\sqrt{3}/2$
45°	$1/\sqrt{2}$	$1/\sqrt{2}$
60°	$\sqrt{3}/2$	$1/2$
90°	1	0



Which of the above figures best depicts the relationship among criminals, thieves and judges ?

- (A) (i)
- (B) (ii)
- (C) (iii)
- (D) (iv)



42. If R is the son of Q, Q and Y are sisters, Z is the mother of Y, P is the son of Z, then which of the following statements is correct ?

- (A) P is the maternal uncle of R
- (B) P and Y are sisters
- (C) R and P are cousins
- (D) None of the above

Directions (Q. Nos. 43 to 45) :

Abhay Sharma checked the blood pressure levels of the patients at Shimla Hospital, Shimla. He tabulated the data according to the number of female and male patients showing high, low and normal blood pressure levels. However, the sheet in which the data was entered got damaged and only the following values could be read :

	Blood Pressure Levels			Total
	Low	High	Normal	
Male	33	24		
Female	36	24	20	180
Total	60	48		

TS : 14/(P)/II—B

Handwritten calculations and notes at the bottom of the page:

- $\frac{60}{33}$
- $\frac{24}{24}$
- $\frac{180}{180}$
- $\frac{180}{24 \times 40} \times 100$
- $\frac{180}{60} = 3$
- $\frac{60}{180} \times 2 = \frac{2}{3}$
- $\frac{180 \times 2}{100}$
- 45%
- $\frac{60 \times 45}{100}$
- $\frac{120}{100}$
- $27 - F$

However, Abhay recalls the following information :

- (i) 40% of the patients surveyed showed either low or high blood pressure.
- (ii) 45% of the total number of patients surveyed are females.
- (iii) Two-third of the female patients had normal level of blood pressure.
- (iv) 20% of the female patients surveyed showed low blood pressure levels.

43. What percentage of patients having low blood pressure are females ?

- (A) 50
- (B) 40
- (C) 60
- (D) None of the above

44. What percentage of the males had normal blood pressure ?

- (A) 56.56
- (B) 55.55
- (C) 54.54
- (D) 53.53

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45. The number of male patients having low blood pressure is what percentage of the total number of (female and male) patients having normal blood pressure ?

- (A) 10
- (B) 15
- (C) 20
- (D) 25

Directions (Q. Nos. 46 to 50) :

Study the conditions given below and answer the questions according to these conditions :

The following are the conditions, laid down for a group of six friends, to choose a picnic spot. If they cannot go to Manali or Shimla or Chandigarh, then they stay at home.

- (1) The average age of the group should be more than 21 years to go to Manali.
- (2) If there are exactly 3 boys and 3 girls within the group, then they must go to Manali.
- (3) If the total cash with the group is less than Rs. 5,000, they stay at home and do not go anywhere.

Handwritten notes: *vio*, *cash*, *Rs 5000*

TS : 14/(P)/II-B

(4) They go to Shimla only if there are exactly 2 boys and 4 girls in the group.

(5) Each of them should have finished his/her final exams before going to picnic.

Handwritten notes: *Vo*, *Ch-2 month no exam*

In case :

P : Condition (3) is violated, but one of them has a car or they can get free hotel accommodation, then Rs. 1,000 out of the total expenses can be saved in each of the two cases.

Q : Condition (5) alone is violated, but none of them have final exams in the next two months, they go to Chandigarh, which is closer.

On the basis of the above for each question that follow, mark your answer as :

- (A) If the friends can go to Shimla
- (B) If the friends can go to Manali
- (C) If the friends can go to Chandigarh
- (D) If the decision cannot be taken on the basis of the data available

Handwritten notes: *M > 21, 3B, 3G*, *at Home < 5000*, *S -> 2B + 4G*

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46. D Two boys and four girls, having an average age of less than 21 years, decide to go out and they have Rs. 4,500 with them. They have a car as well as free hotel accommodation. Three of them have not finished all their exams.
47. A Six friends decide to go on a picnic and their average age is 20. They have a car and cash amounting to Rs. 4,200. All of them have finished their exams. There are 2 boys and 4 girls in the group.
48. C Two boys and four girls, having an average age of 19 years and Rs. 5,800 cash decide to go to picnic. Four of them have their exams five months from now and rest have finished their exams.
49. B 3 boys and 3 girls with an average age of 24 years, have decided to go to picnic, having finished their final exams and they have Rs. 15,000 with them.
50. A Two boys and four girls have only Rs. 3,000 between them. The parent of one of the friends is providing a car and another parent is arranging accommodation for them. All the friends have finished their exams and the average age of the friends is 20 years.

51. The value of the fraction $1 + \frac{2}{1 + \frac{3}{1+4}}$ when written as decimal is :

Handwritten work: $1 + \frac{2}{1 + \frac{3}{5}} = 1 + \frac{2}{1 + 0.6} = 1 + \frac{2}{1.6} = 1 + \frac{2 \times 5}{1.6 \times 5} = 1 + \frac{10}{8} = 1 + 1.25 = 2.25$

- (A) 1.5 (B) 2.25
 (C) 2.5 (D) 2.6
52. Suppose your height this year is 10% more than last year, and past year your height was 20% more than it was the year before. By what percentage has your height increased during the last two years?
 (A) 30 (B) 31
 (C) 32 (D) 15
53. Multiply the consecutive even positive integers together until the product 2.4.6.8..... becomes divisible by 1995. The largest even integer used is :
 (A) between 1 and 21
 (B) between 21 and 31
 (C) between 31 and 41
 (D) bigger than 41
54. The average of the test scores of a class of 'm' students is 70 and that of 'n' students is 91. When the score of both the groups are combined, the average is 80. What is $\frac{n}{m}$?
 (A) $\frac{10}{11}$ (B) $\frac{13}{10}$
 (C) $\frac{10}{13}$ (D) $\frac{11}{10}$

TS : 14/(P)/II-B

Handwritten work for Q54:
 $70m + 91n = 80$
 $m \rightarrow 70$
 $n \rightarrow 91$
 $\frac{70}{91} \times \frac{10}{10} = \frac{700}{910}$
 $\frac{700}{910} = \frac{10}{13}$



$$A \cup B = n(A) + n(B) - n(A \cap B)$$

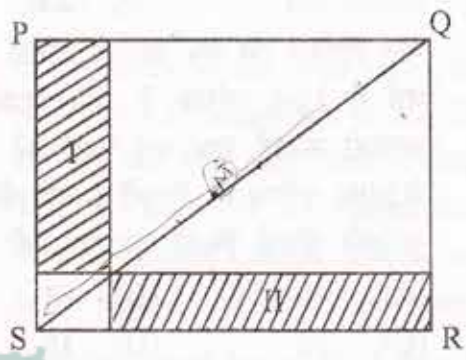
$$n(A \cup B) = 50$$

$$A = 14$$

$$B = 31$$

$$n(A \cup B) = 45$$

55. The quadrilateral PQRS is a rectangle. M is any point on its diagonal SQ. What can one say sure about areas of two shaded regions.

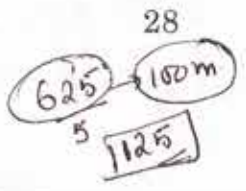
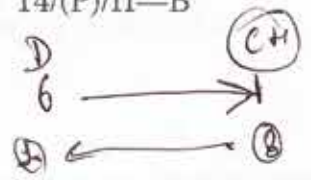


- (A) The area I is larger than area II
- (B) The area I is smaller than area II
- (C) The area I is equal to area II
- (D) Insufficient information to draw any of the above conclusion

56. Six hundred and twenty five students enter a 100 m race. The track has five lanes. At the end of each race the winner survives, while other four are eliminated. How many races are needed to determine the champion ?

- (A) 106
- (B) 156
- (C) 136
- (D) 150

TS : 14/(P)/II-B



57. In a group of 50 persons who are either Americans or French and each one is either a graduate or post-graduate. 14 are Graduate Americans, 31 are French and 18 are Post-graduate. How many are Post-graduate French ?

- (A) 5
- (B) 7
- (C) 9
- (D) 13

58. A train leaves Delhi at 6.00 am and reaches Chandigarh at 1.00 pm. Second train leaves Chandigarh at 8.00 am and reaches Delhi at 1.00 pm moving on parallel tracks and with constant speed, at what time would they meet ?

- (A) 9.15 am
- (B) 8.55 am
- (C) 10.05 am
- (D) 10.55 am

59. At what time between 3 O'clock and 4 O'clock, will the hands of a clock be together ?

- (A) $16 \frac{3}{11}$ mins past 3
- (B) $14 \frac{3}{11}$ mins past 3
- (C) $16 \frac{4}{11}$ mins past 3
- (D) $15 \frac{4}{11}$ mins past 3

