QUANTITATIVE APTITUDE

Directions (Qns. 1 – 5) : Read the following information carefully to answer the questions given below.

In a college, 150 students of MBA are enrolled. The ratio of boys and girls is 7 : 8 respectively. There are three disciplines namely marketing, HR and finance in the college. In marketing discipline there are 50% girls of their total number and the boys are 40% of their total number. In HR discipline, girls are 30% of their total number while boys are 30% of their total number. Finance discipline has girls 20% of their total number and boys 30% of their total number. 7 boys and 9 girls are in HR and marketing both. 6 boys and 7 girls are in HR and finance both. 5 boys and 8 girls are in marketing and finance both. 2 boys and 3 girls are enrolled in all three disciplines.

1. What percentage of students are enrolled in all three disciplines ?

A) 3.3% **B)** 7.2%

C) 8.5% **D)** 9.32%

E) None of these

Explanation : **Ans : A)**

Required percentage

$$= \frac{5}{150} \times 100 = \frac{10}{3} = 3\frac{1}{3}\% = 3.3\%$$

2. What is the respective ratio of boys and girls only in marketing discipline ?

A) 13 : 9 **B)** 9: 13

C) 9 : 11 **D)** 11 : 9

E) None of these

Explanation : **Ans : B)**

Required ratio = 18: 26 = 9 : 13

3. The ratio of number of boys in marketing and finance both and that of girls in finance only is

A) 5 : 3 **B)** 3 : 5

C) 5 : 4 **D)** 4 : 7

E) None of these

Explanation : **Ans : C)**

Required ratio = 5: 4

4. By what percent is the number of boys in marketing more than the number of girls in HR discipline ?

A) $13\frac{1}{3}\%$ **B)** $33\frac{1}{3}\%$

C) $14\frac{2}{3}\%$ **D)** $16\frac{2}{3}\%$

E) None of these

Explanation : **Ans : D)**

Required percentage

$$= \frac{28-24}{24} \times 100 = \frac{50}{3} = 16\frac{2}{3}\%$$

5. The ratio of boys and girls enrolled in HR discipline only is respectively

A) 10 : 11 **B)** 9 : 10

C) 7 : 5 **D)** 5 : 7

E) None of these

Explanation : **Ans : A)**

Required ratio = 10 : 11

Directions (Qns. 6-10) : Each of the following questions consists of a question followed by three statements I, II and III. You have to study the question and the statements and decide which of the statement(s) is/are necessary to answer the question.

6. What is the speed of boat in still water ?

I. The boat covers 12 km in 2 hours in downstream.

II. The boat covers same distance in 4 hours in upstream.

III. The speed of stream is one third of that of boat in still water.

Select the correct answer :

A) Both I and II

B) I and either II or III

C) All I, II and III

D) Question cannot be answered even with the information in all three statements.

E) None of these

Explanation : **Ans : B)**

From statements I and II, Rate downstream
$= u + v = 6$ kmph

Rate upstream $= u - v = 3$ kmph

$$u = \frac{1}{2}((u+v) + (u - v))$$

$$= \frac{1}{2}(6+3) = \frac{9}{2} \text{ kmph}$$

From statements I and III, $u + v = 6$ kmph

$$\Rightarrow u + \frac{u}{3} = 6 \Rightarrow 4u = 18$$

$$\Rightarrow u = \frac{18}{4} = \frac{9}{2} \text{ kmph}$$

7. What is the speed of train ?

I. The length of train is 240 metre.

II. The train crosses a pole in 24 seconds.

III. The train crosses a platform in 48 seconds.

Select the correct answer :

A) Both I and III **B)** Both I and II

C) Both II and III **D)** Any two of three

E) None of these

Explanation : **Ans : B)**

From statements I and II,

$$\text{Speed of train} = \frac{240}{24} = 10 \text{ m/sec}$$

8. What is the age of class teacher ?

I. There are 11 students in the class.

II. The average age of students and the teacher is 14 years.

III. The average age of the teacher and students is 3 years more than that of students.

Select the correct answer :

A) Both I and III **B)** Both I and II

C) II and either I or III

D) All I, II and III **E)** None of these

Explanation : **Ans : D)**

From all three statements,

Total age of 11 students + 1 teacher

$= 14 \times 12 = 168$ *years*

Average age of 11 students + teacher

= Average age of 11 students + 3

$\Rightarrow$ Average age of 11 students

$= 14 - 3 = 11$ *years*

Their total age $= 11 \times 11 = 121$ *years*

Teacher's age $= 168 - 121 = 47$ *years*

9. Sri Gupta borrowed a sum at compound interest. What is the amount returned in 2 years ?

I. The rate of interest is 5% per annum.

II. The simple interest incurred on the sum in 1 year is ₹ 600.

III. The borrowed sum is ten times the amount earned as simple interest in two years.

Select the correct answer :

A) Only I **B)** Only III

C) Both II and III **D)** Either I or III

E) All I, II and III

Explanation : **Ans : E)**

From statements I, II and III,

SI for two years = ₹ 1200

Principal $= 10 \times 1200 =$ ₹ 12000

Thus we can find C.I. and amount.

10. What is the area of the given right angled triangle ?

I. The length of hypotenuse is 5 cm.

II. The perimeter of triangle is four times of its base.

III. One of the angles of triangle is 60°

Select the correct answer :

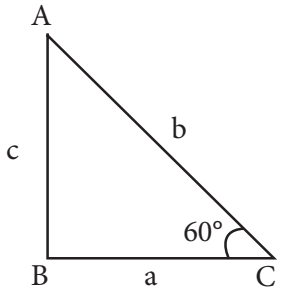
A) Only II **B)** Only III

C) Either II or III **D)** Both I and III

E) Question cannot be answered even with the information in all three statements

Explanation : **Ans : D)**

From statements I and III,



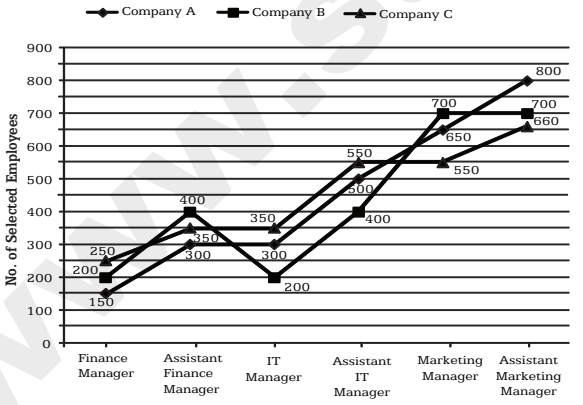
$\frac{AB}{AC} = \cos 60^\circ \Rightarrow BC = \frac{5}{2}$

$a = \frac{5}{2}$, $b = 5$ and $\theta = 60^\circ$

$\therefore$ We get area by $A = \frac{1}{2} ab \sin C$

Directions (Qns. 11 – 15) : Study the following graph carefully to answer the questions given below.

Number of selected employees in different grades/ranks by three companies during 2012



11. What is the average number of selected employees by company A in all grades taken together ?

A) 450 **B)** 460

C) 475 **D)** 375

E) None of these

Explanation : **Ans : A)**

Required average $= \frac{2700}{6} = 450$

12. What is the respective ratio of selected employees for the post of assistant IT managers by all the companies A, B and C together ?

A) 8 : 10 : 11 **B)** 10 : 8 : 11

C) 11 : 10 : 8 **D)** 10 : 11 : 8

E) None of these

Explanation : **Ans : B)**

Required average

$= 500 : 400 : 550 = 10 : 8 : 11$

13. By what percent is the number of selected employees for finance managers by company C more than that of selected employees by company B for the same post ?

A) 35% **B)** 30%

C) 25% **D)** 40%

E) None of these

Explanation : **Ans : C)**

Required percentage

$= \frac{250 - 200}{200} \times 100 = 25\%$

14. What is the average number of selected employees for the post of assistant marketing managers by all companies taken together ?

A) 570 **B)** 520

C) 620 **D)** 720

E) None of these

Explanation : **Ans : D)**

Required average

$= \frac{800 + 700 + 660}{3} = \frac{2160}{3} = 720$

15. **What is the respective ratio of selected employees for IT managers by all companies A, B and C ?**

A) 6 : 4 : 7 **B)** 5 : 3 : 7

C) 4 : 7 : 9 **D)** 8 : 7 : 6

E) None of these

Explanation : **Ans : A)**

Required ratio = 300 : 200 : 350 = 6 : 4 : 7

16. **Three men A, B and C start a business together. They invest ₹ 30000, ₹ 24000 and ₹ 42000 respectively in the beginning. After 4 months, B took out ₹ 6000 and C took out ₹ 10000. They get a profit of ₹ 11960 at the end of the year. B's share in the profit is**

A) ₹ 2700 **B)** ₹ 2803

C) ₹ 2900 **D)** ₹ 2785

E) None of these

Explanation : **Ans : B)**

Ratio of equivalent capitals for 1 month

= 30000 × 12 : (24000 × 4 + 18000× 8)

: (42000 × 4 + 32000 × 8)

= 360000 : 240000 : 424000

= 90 : 60 : 106 = 45 : 30 : 53

Sum of ratios = 45 + 30 + 53 = 128

$\therefore$ B's share = $\frac{30}{128} \times 11960 =$ ₹ 2803

17. **The edge of an ice cube is 14 cm. The volume of the largest cylindrical ice cube that can be formed out of it is**

A) 2200 cu.cm **B)** 2000 cu.cm

C) 2156 cu.cm **D)** 2400 cu.cm

E) None of these

Explanation : **Ans : C)**

Radius of cylinder = $\frac{14}{2}$ = 7 cm

Height of cylinder = 14 cm

$\therefore$ Required volume = $\pi r^2 h$

= $\frac{22}{7} \times 7 \times 7 \times 14 = 2156$ cu.cm.

18. **A sum of ₹ 16800 is divided into two parts. One part is lent at the simple interest of 6% per annum and the other at 8% per annum. After 2 years total sum received is ₹ 19000. The sum lent at 6% of simple interest is**

A) ₹ 12200 **B)** ₹ 12000

C) ₹ 11000 **D)** ₹ 10000

E) None of these

Explanation : **Ans : A)**

Sum lent at 6% rate of interest = ₹ x

S.I. = 19000 – 16800 = ₹ 2200

$\therefore \frac{x \times 6 \times 2}{100} + \frac{(16800 - x) \times 8 \times 2}{100} = 2200$

$\Rightarrow 12x + 16800 \times 16 - 16x = 220000$

$\Rightarrow 4x = 268800 - 220000$

$\Rightarrow 4x = 48800 \Rightarrow x =$ ₹ 12200

19. **The present age of Romila is one fourth of that of her father. After 6 years the father's age will be twice the age of Kapil. If Kapil celebrated fifth birth day 8 years ago, What is Romila's present age ?**

A) 7 years **B)** 7.5 years

C) 8 years **D)** 8.5 years

E) None of these

Explanation : **Ans : C)**

Kapil's present age = 13 years

After 6 years, Kapil's age = 19 years

$\therefore$ Father's present age = 38 – 6 = 32 years

$\therefore$ Romila's present age = $\frac{1}{4} \times 32 = 8$ years

20. **In an examination, 35% of total students failed in Hindi, 45% failed in English and 20% failed in both subjects. Find the percentage of those who passed in both the subjects.**

A) 35.7% **B)** 35%

C) 40% **D)** 45%

E) 44%

Explanation : **Ans : C)**

$n(A) = 35, n(B) = 45, n(A \cap B) = 20$

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

$= 35 + 45 - 20 = 60$

∴ Percentage of failed students in Hindi or English or both = 60%

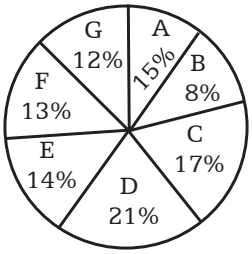
∴ Successful students = 40%

Directions (Qns. 21-25) : The following questions are based on the pie-charts given below.

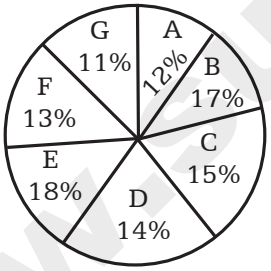
Percentage wise Distribution of students studying in Arts and commerce in seven different institutions

Different institutions – A, B, C, D, E, F and G

Total number of students studying Arts = 3800



Total number of students studying commerce = 4200



21. What is the total number of students studying Arts in institutes A and G together ?

A) 1026 **B)** 1126

C) 1226 **D)** 1206

E) 1306

Explanation : **Ans : A)**

Required answer $= 3800 \times \frac{27}{100} = 1026$

22. How many students from institute B study Arts and Commerce ?

A) 1180 **B)** 1108

C) 1018 **D)** 1208

E) 1408

Explanation : **Ans : C)**

Required answer $= \frac{3800 \times 8}{100} + \frac{4200 \times 17}{100}$

$= 304 + 714 = 1018$

23. The respective ratio between the number of students studying Arts and Commerce from institute E is

A) 27 : 14 **B)** 19: 27

C) 19:16 **D)** 19: 28

E) None of these

Explanation : **Ans : B)**

Required ratio $= \frac{3800 \times 14}{100} : \frac{4200 \times 18}{100}$

$= 38 \times 14 : 42 \times 18 = 19 : 27$

24. The ratio between the number of students studying Arts from institute E and that of students studying Commerce from institute D is

A) 12 : 17 **B)** 12 : 7

C) 19 : 21 **D)** 17 : 19

E) None of these

Explanation : **Ans : C)**

Required ratio

$= \frac{3800 \times 14}{100} : \frac{4200 \times 14}{100} = 19 : 21$

25. How many students from institutes B and D together study Commerce ?

A) 1320 **B)** 1302

C) 1202 **D)** 1220

E) None of these

Explanation : **Ans : B)**

Required answer $= \frac{4200 \times 17}{100} + \frac{4200 \times 14}{100}$

$= 714 + 588 = 1302$