UANTITATIVE 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

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

- 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.

- 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

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

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

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

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

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

Speed of train =
$$\frac{240}{24}$$
 = 10 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
- ⇒ 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 $\stackrel{?}{\stackrel{\checkmark}{}}$ 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°

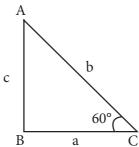
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Select the correct answer:

- 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,



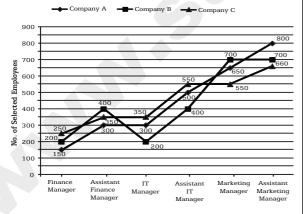
$$\frac{AB}{AC} = \cos 60^{\circ} \Rightarrow BC = \frac{5}{2}$$

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

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

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

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

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- 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:

Ratio of equivalent capitals for 1 month

 $= 30000 \times 12 : (24000 \times 4 + 18000 \times 8)$

 $: (42000 \times 4 + 32000 \times 8)$

= 360000 : 240000 : 424000

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

Sum of ratios = 45 + 30 + 53 = 128

∴ 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)

Ans: B)

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)

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

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

$$\Rightarrow 4x = 268800 - 220000$$

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

- 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 *y*ears
- **B)** 7.5 years
- C) 8 years
- **D)** 8.5 years

Ans: C)

E) None of these

Explanation :

Kapil's present age = 13 years

After 6 years, Kapil's age = 19 years

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

∴ 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%

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Explanation:

Ans : C)

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

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

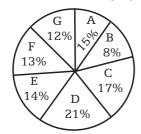
$$= 35 + 45 - 20 = 60$$

- .. Percentage of failed students in Hindi or English or both = 60%
- ∴ Successful students = 40%

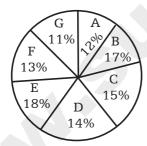
Directions (Qns. 21-25): The following questions are based on the pie-charts given below.

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)

Ans: B)

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:

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

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

- The ratio between the number of students 24. 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 =
$$\frac{4200 \times 17}{100} + \frac{4200 \times 14}{100}$$

$$= 714 + 588 = 1302$$