

Date: 06/11/2016

**Max. Marks: 50**

**SOLUTIONS**

**Time allowed: 45 mins**

1. In a 100 metre race A beat B by 20 metre or 5 seconds. Find the speed of A  
 (A) 5 metre/sec                      (B) 4 metre/sec                      (C) 6 metre/sec                      (D) 4 metre/sec

**Ans. (A)**

**Sol.** Speed =  $\frac{D}{t} = \frac{100}{20} = 5 \text{ m/sec}$

2. The unit digit of product of first 40 natural numbers is :  
 (A) 7                                      (B) 0                                      (C) 5                                      (D) None of these

**Ans. (B)**

**Sol.**  $(1 \times 2 \times 3 \times \dots \times 40) = \text{unit digit} = 0$

3. The salary of a worker is first increased by 12% and there after it was decreased by 12% what was the change in salary  
 (A) 1.44% Decrease                      (B) 1% Increase                      (C) 1.44% Increase                      (D) No change

**Ans. (A)**

**Sol.**  $1.12 \times 0.88 = 0.9856 \Rightarrow 1.44\% \text{ decrease}$

4. The mean of  $x + \frac{1}{x}$  is N. Then mean of  $x^2 + \frac{1}{x^2}$  is  
 (A)  $N^2$                                       (B)  $N^2 - 2$                                       (C)  $2N^2 - 1$                                       (D)  $4N^2 - 2$

**Ans. (C)**

**Sol.**  $x + \frac{1}{x} = 2N$

$$x^2 + \frac{1}{x^2} = \left(x + \frac{1}{x}\right)^2 - 2 = 4N^2 - 2$$

$$\text{mean} = \frac{4N^2 - 2}{2} = 2N^2 - 1$$

5. It  $x^{47} + 1$  is divided by  $x^2 - 1$ , the remainder will be  
 (A)  $x - 1$                                       (B)  $x + 1$                                       (C)  $x$                                       (D)  $-x$

**Ans. (B)**

**Sol.**  $\frac{x^{47} + 1}{x^2 - 1} = \frac{x^{47} + 1}{(x + 1)(x - 1)}$

By remainder theorem

$$x^{47} + 1 = (x + 1)(x - 1)Q + (ax + b)$$

$x = 1$  and  $-1$  are factors of this equation

$$\therefore \text{at } x = 1 \quad 2 = a + b$$

$$\text{at } x = -1 \quad 0 = -a + b$$

$$\therefore a = b$$

Put  $a = b$  in equation  $2 = a + b$ , on solving we get  $a = 1 = b$

$\therefore$  Remainder  $(ax + b)$  is  $(x + 1)$

6. If  $\frac{p}{q} + \frac{q}{p} = 2$ , what is the value of  $\left(\frac{p}{q}\right)^{23} + \left(\frac{q}{p}\right)^7$ .

- (A) 0 (B) 2 (C) -2 (D) None of these

Ans. (B)

Sol.  $\frac{p}{q} + \frac{q}{p} = 2$

$$p^2 + q^2 = 2pq$$

$$(p - q)^2 = 0 \Rightarrow p = q$$

7. Which one of the following is in ascending order

- (A)  $\frac{7}{6}, \frac{5}{4}, \frac{4}{3}, \frac{9}{7}$  (B)  $\frac{7}{6}, \frac{5}{4}, \frac{9}{7}, \frac{4}{3}$  (C)  $\frac{4}{3}, \frac{9}{7}, \frac{5}{4}, \frac{7}{6}$  (D)  $\frac{9}{7}, \frac{4}{3}, \frac{7}{6}, \frac{5}{4}$

Ans. (B)

Sol.  $\frac{7}{6} < \frac{5}{4} < \frac{9}{7} < \frac{4}{3}$

**Direction (Q. 8 to Q.11) :** There is a (number/letter) series in the following questions with an item missing marked with question mark (?). Find the best appropriate option from the given option

8. 4, 18, (?), 100, 180, 294

- (A) 32 (B) 36 (C) 48 (D) 44

Ans. (C)

Sol.  $2^2 \times 1, 3^2 \times 2, 4^2 \times 3, 5^2 \times 4, \dots$

9. 30, 68, 130, 222, (?), 520, 738

- (A) 420 (B) 350 (C) 250 (D) 280

Ans. (B)

Sol.  $3^3 \times 3, 4^3 \times 4, 5^3 \times 5, 6^3 \times 6, 7^3 \times 7, \dots$

10. 6072 (?), 200, 48, 14, 5, 3

- (A) 1010 (B) 1001 (C) 1100 (D) 1110

Ans. (A)

Sol. In reverse order

$$\underbrace{3, 5, 14, 48, 200, 1010, 6072}_{\substack{x1+2 \quad x2+4 \quad x3+6 \quad x4+8 \quad x5+10}}$$

11. N5V, K7T (?), EI4P BI9N

- (A) H 9 R (B) H10Q (C) H10R (D) I10R

Ans. (C)

Sol. N5V, K7T (?), EI4P BI9N

$$\begin{array}{cccccc} \text{V} & \text{T} & \text{R} & \text{P} & \text{N} & \\ \hline -2 & -2 & -2 & -2 & -2 & \end{array}$$

$$\begin{array}{cccccc} 5 & 7 & 10 & 14 & 19 & \\ \hline +2 & +3 & +4 & +5 & & \end{array}$$

$$\begin{array}{cccccc} \text{N} & \text{K} & \text{H} & \text{E} & \text{B} & \\ \hline -3 & -3 & -3 & -3 & -3 & \end{array}$$

**12.** An elevator has the capacity to carry 12 adults or 20 children. How many adults can be carried by the elevator with 15 children.

- (A) 4 (B) 3 (C) 5 (D) 6

**Ans. (B)**

**Sol.**  $12 : 20 :: x : 15$

$$\frac{12}{20} = \frac{x}{15}$$

$$x = \frac{12 \times 15}{20} = 9$$

$\therefore$  Now 3 adults can be carried with 15 children.

**13.** If HE = 41 and SHE = 49 then COME = ?

- (A) 36 (B) 70 (C) 72 (D) 78

**Ans. (C)**

**Sol.** 72

Add the digits of Come (2,4,1,2,2) in reverse alphabetical order.

So total is 72.

**14.** Which of the following four logical diagrams represent correctly the relationship between whale, fish and crocodile.



**Ans. (B)**

**Sol.** All whales come in the category of fish and no crocodile is fish.

**Direction (Q.15 to Q.18) :** In each of the following questions there are given a combination of letter. Followed by four (A, B, C, D) alternatives choose the alternative which resembles the mirror image of the given combination most appropriately.

**15.** BUZZER

- (A) RƎZZER (B) REZZUR (C) REZZUR (D) RƎZZER

**Ans. (A)**

**Sol.**

**16.** JUDGEMENT

- (A) TNEMEGDUJ (B) TNEMEGDUJ (C) TNEMEGDUJ (D) TNEMEGDUJ

**Ans. (C)**

**Sol.**

**17.** R4E3N2U

- (A) RƎ4 N2U 3 (B) U2N3E 4R (C) USNƎƎR (D) USNƎƎR

**Ans. (C)**

**Sol.**

**18.** DBV8476

- (A) ƎLƎ8VƎD (B) 6 7 4 8 VBD (C) 8 4 7 6 DBV (D) ƎV8ƎƎƎD

**Ans. (D)**

**Sol.**

**Direction (For Q.19 to Q.22) :** In each of the following questions a matrix of certain number is given with a question mark (?) in one block. These number follow a certain trend carefully go through the numbers and choose the missing (?) character

**19.**

4	5	6
2	3	7
1	8	3
21	98	?

- (A) 94                                      (B) 76                                      (C) 73                                      (D) 16

**Ans. (A)**

**Sol.**  $6^2 + 7^2 + 3^2 = 94$

**20.**

38	44	42
23	55	28
37	?	39

- (A) 33                                      (B) 66                                      (C) 22                                      (D) 77

**Ans. (C)**

**Sol.**  $(39 - 37) \times 11 = 22$

**21.**

?	13	49
9	17	69
13	11	59

- (A) 9                                      (B) 5                                      (C) 10                                      (D) 11

**Ans. (B)**

**Sol.** By row 2  $\rightarrow 9 \times 2 + 17 \times 3 = 69$

$\therefore$  In row 1  $\rightarrow x \times 2 + 13 \times 3 = 49$

$\therefore x = 5$

**22.**

1	5	7	75
8	3	4	?
9	7	8	194

- (A) 20                                      (B) 43                                      (C) 89                                      (D) 96

**Ans. (C)**

**Sol.**  $(8)^2 + (3)^2 + (4)^2 = 89$

**Direction (Q.23 to Q.26) :** Read the information carefully and answer the question that follows.

A blacksmith has five iron articles A, B,C,D,E each having a different weight.

- (i) A weights twice as much as B.
- (ii) B weight four and half times as much as C
- (iii) C weight half as much has D
- (iv) D weight half as much as E
- (v) E weigh less than A but more than C.

**Sol. (Q.23 to Q.26) :**

According to given information the arrangement formed is

$$A > B > E > D > C$$

**23.** Which of the following is lightest in weight

- (A) A
- (B) B
- (C) C
- (D) D

**Ans. (C)**

**Sol.**  $A > B > E > D > C$

**24.** E is lighter in weight than which of the other two articles.

- (A) A,B
- (B) D, C
- (C) A, C
- (D) D, B

**Ans. (A)**

**Sol.**  $A > B > E > D > C$

**25.** E is heavier than which of the following two articles

- (A) D,B
- (B) D,C
- (C) A,C
- (D) A,B

**Ans. (B)**

**Sol.**  $A > B > E > D > C$

**26.** Which of the following is heaviest in weight

- (A) A
- (B) B
- (C) C
- (D) D

**Ans. (A)**

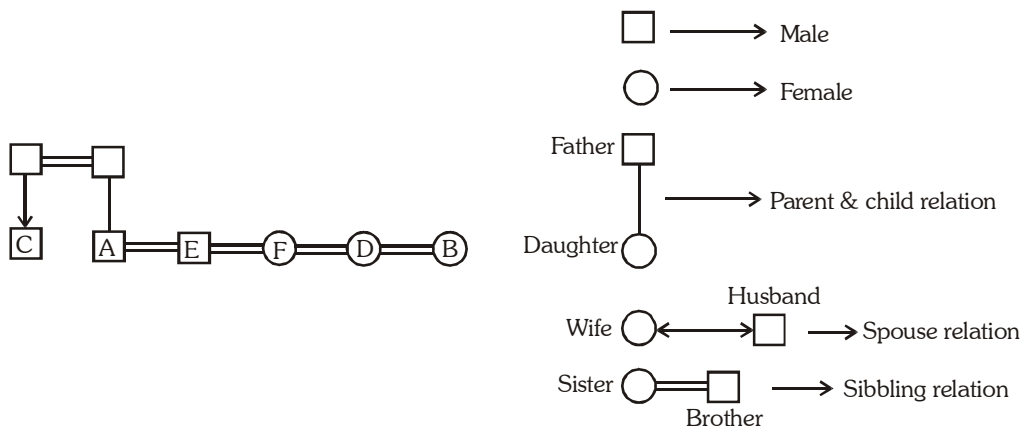
**Sol.**  $A > B > E > D > C$

**Direction (Q.27 to Q.30) :** Read the information carefully and answer the question that follow-

There are six children taking part in an essay competition namely A,B,C,D, E and F. A and E are brother. F and D are sister of E. C is the only son of A's uncle, B and D are the daughters of the brother of C's father.

**Sol. Direction (Q.27 to Q.30) :**

According to the given information, we make relation ship diagram where,



27. How is D related to A?

- (A) Uncle (B) Sister (C) Niece (D) Cousin Sister

**Ans. (B)**

**Sol.** By diagram

28. How many male competitor are there

- (A) 6 (B) 5 (C) 4 (D) 3

**Ans. (D)**

**Sol.** By diagram

29. How many female competitors are there

- (A) 5 (B) 4 (C) 3 (D) 2

**Ans. (C)**

**Sol.** By diagram

30. How is C related to F

- (A) Cousin brother (B) Brother (C) Son (D) Uncle

**Ans. (A)**

**Sol.** By diagram

**Direction(Q.31 to Q.35) :** Read the information carefully and answer the questions.

- (i) Six friends Rahul, Kabeer, Anup, Raghu, Amit and Alok were engineering graduates. All six of them were placed in six different companies and were placed in six different location namely Tisco- Jameshepur, Telco-Pune, wipro-Bengaluru. HCL-Noida, Mecom-Ranchi and Usha Martin- Kolkata. Each of them has their personal e-mails ids with different e-mails providers i.e. gmial, indiatimes, rediffmail, yahoo, hotmail and sancharnet though not necessarily in same order.
- (ii) The one having e-mail account with sancharnet works in Noida and the one having email account with India times works for Tisco.
- (iii) Amit does not stay in Bengaluru and does not work for Mecon and the one who works for Mecon has an email id with gmail.
- (iv) Rahul has an email id with rediffmial and works at Pune.
- (v) Alok does not work for Mecon and the one who work for wipro does not have an email account with yahoo.
- (vi) Kabeer is posted in Kolkata and does not have an account with hotmail.
- (vii) Nither Alok nor Raghu work in Noida.
- (viii) The one who posted in Ranchi, has an email id which is not an account of redffimial or hotmail.
- (ix) Anup is posted in Jamshedpur.

**Sol. (Q.31 to Q.35) :** According to given information, the distribution table is.

Name	Rahul	Kabeer	Anup	Raghu	Amit	Alok
Email	Rediff	Yahoo	Indiatimes	gmail	Sanchamet	hotmail
Location	Pune	Kolkata	Jamshedpur	Ranchi	Noida	Bengaluru
Company	Telco	Usha martin	Tisco	Mecon	HCL	Wipro

31. The main who works in wipro has an email account with:

- (A) Sancharnet (B) yahoo (C) Rediffinail (D) Hotmail

**Ans. (D)**

**Sol.** By distribution table

**32.** Which of the following email, place of posting and person combination is correct?

- (A) Kabeer- Kolkata- Rediffmail
- (B) Alok- Bengalaru- Indatimes
- (C) Amit - Noida-Yahoo
- (D) Raghu - Ranchi- Gmail

**Ans. (D)**

**Sol.** By distribution table

**33.** Which of the following is true-

- (A) Amit is posted in Ranchi
- (B) Raghu is posted in Jameshpur
- (C) Kabeer has an email id with yahoo
- (D) Rahgu has an email id with indiatimes

**Ans. (C)**

**Sol.** By distribution table

**34.** Which of the following sequence of location represents Alok, Kabeer, Anup, Rahul, Raghu and Amit in the same order

- (A) Bengaluru, Noida, Pune, Jamshedpur, Ranchi, Kolkata
- (B) Bengaluru, Kolkata, Jamshedpur, Pune, Noida, Ranchi
- (C) Kolkta, Bengaluru, Jamshedpur, Pune, Noida, Ranchi
- (D) None of these

**Ans. (D)**

**Sol.** By distribution table

**35.** People who have email account with Indiatimes suncharnet and yahoo work for which companies in the name sequence as the email account maintained

- (A) Usha Martin, H.C.L, Wipro
- (B) Tisco, Wipro, Usha Martin
- (C) H.C.L, Tisco, Wipro
- (D) Tisco, H.C.L, Usha Martin

**Ans. (D)**

**Sol.** By distribution table

**36.** The number of boys in a calss is three times the number of girls. Which one of the following number can not represent the total number of children in the class

- (A) 48
- (B) 44
- (C) 42
- (D) 40

**Ans. (C)**

**Sol.** Boys = 3 Girls

$$\begin{aligned} \therefore \text{Total students} &= \text{Boys} + \text{Girls} \\ &= 3 \text{ Girls} + \text{Girls} = 4 \text{ (Girls)} \\ \therefore \text{Total students} &\text{are multiple of 4.} \end{aligned}$$

**37.**  $A + B > C + D$  and  $B + C > A + D$  then it is definite that

- (A)  $D > B$
- (B)  $C > D$
- (C)  $A > D$
- (D)  $B > D$

**Ans. (D)**

**Sol.** Adding both the equations

$$\begin{aligned} (A + B) + (B + C) &> (C + D) + (A + D) \Rightarrow A + 2B + C > C + A + 2D \\ \therefore 2B &> 2D \\ B &> D \end{aligned}$$

38. If  $264 * 2 = 6$ ,  $870 * 3 = 11$  then  $735 * 5$  be

- (A) 5 (B) 12 (C) 16 (D) 3

Ans. (B)

Sol.  $\frac{735}{5} = 147 \Rightarrow 1 + 4 + 7 = 12$

39. There are 35 students in a class. Suman ranks 3rd among the girls in the class. Amit ranks 5th among the boys in the class. Suman is one rank below Amit in the class. No two students hold the same rank in the class. What is Amit's rank in the class.

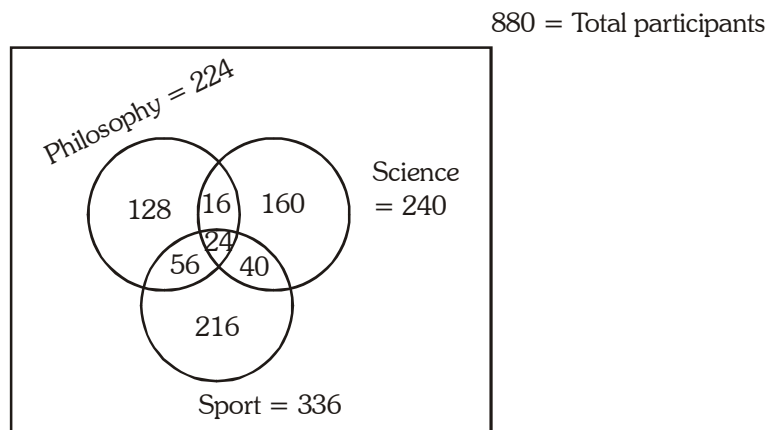
- (A) 7th rank (B) 5th rank (C) 8th rank (D) Cannot not determined

Ans. (D)

Sol. Proper arrangement of students is not possible with the given information.

Direction (Q.40 to Q.44) : Refer to the data below and answer the question that follow-

A national level competition held last year, participants were free to choose their respective areas from which they were asked questions. Out of 880 participants, 224 choose philosophy 240 choose science and 336 choose sports, 64 choose both science and sports, 80 choose philosophy and sports, 40 choose philosophy and science and 24 choose all the three areas.



40. The percentage of participants who did not choose any area is

- (A) 23.59% (B) 30.25% (C) 37.46% (D) 27.27%

Ans. (D)

Sol.  $\frac{240}{880} \times 100 = \frac{2400}{88} = 27.27\%$

41. Of these participating, the percentage who choose only one area is

- (A) 60% (B) More than 60% (C) Less than 60% (D) More than 75%

Ans. (C)

Sol.  $\frac{128+160+216}{880} \times 100 = \frac{504}{880} \times 100 = 57.27\%$



- 42.** Number of participants who choose at least two area is  
 (A) 112 (B) 24 (C) 136 (D) None of these

**Ans. (C)**

**Sol.**  $56 + 24 + 16 + 40 = 136$

- 43.** Which of the following area shows a ratio at 1 : 8 ?  
 (A) Philosophy and Science but not sports : Philosophy (only)  
 (B) Philosophy and sport but not science : Science (only)  
 (C) Science : Sports  
 (D) None of these

**Ans. (A)**

**Sol.**  $16 : 128 \Rightarrow 1 : 8$

- 44.** The ratio of at students choosing sports and Science but not philosophy to science but not philosophy and sports is  
 (A) 2 : 5 (B) 1 : 4 (C) 1 : 5 (D) 1 : 2

**Ans. (B)**

**Sol.**  $40 : 160 \Rightarrow 1 : 4$

**Direction (Q.45 to Q.47) :** Read the following information carefully and answer the questions based on there

Ravi and Kunal are good in hockey and volleyball. Sachin and Ravi are good in hockey and base ball. Gaurav and Kunal are good in volley ball and Cricket. Sachin, Sagar and Gaurav are good to baseball and football

	Hockey	Vollyball	Baseball	Cricket	Football
Ravi	√	√	√		
Kunal	√	√		√	
Gaurav		√	√	√	√
Sagar			√		√
Sachin	√		√		√

- 45.** Whoe is good in hockey, cricket and volleyball ?  
 (A) Sachin (B) Kunal (C) Sagar (D) Ravi

**Ans. (B)**

**Sol.** By distribution table.

- 46.** Who is good is baseball,cricket volleyball and football  
 (A) Sachin (B) Kunal (C) Gaurav (D) Sagar

**Ans. (C)**

**Sol.** By distribution table.

- 47.** Who is good in football and baseball but not good in hockey, volleyball and cricket.  
 (A) Sugar (B) Sachin (C) Ravi (D) Gaurav

**Ans. (A)**

**Sol.** By distribution table.

**Direction (Q.48 & Q.49) :** Find the correct choice from the given 4 options in place of question mark (?)

**48.** Bank : Rupees :: Transport : ?

- (A) Goods                      (B) Road                      (C) Traffic                      (D) Speed

**Ans. (A)**

**Sol.**

**49.** Market : Demand :: Farming :

- (A) Farmer                      (B) Monsoon                      (C) Foodgrain                      (D) Supply

**Ans. (B)**

**Sol.**

**50.** In certain language DEAF is coded on 3587 and FILIR is coded as 74665. How is IDEAL written in that code

- (A) 43568                      (B) 43586                      (C) 48536                      (D) 63548

**Ans. (B)**

**Sol.** Direct coding of alphabets.

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