

# DETAILED SOLUTIONS

IIFT 2015

29. Average marks of the first three quizzes = 80

So, for Rahul to have average internal marks more than 80, he has to score more than 80 marks in the last quiz.

This is possible if he attempts 10 questions or 9 questions correctly.

Number of ways this can be done =  $1 + {}^{10}C_9 = 1 + 10 = 11$

Total number of ways the quiz can be solved =  $2^{10} = 1024$

∴ The required probability =  $11/1024$

Hence, **option 2**.

30. Let Rohini's age in the year 2014 is  $R$  and Arvind's age is  $A$ .

∴  $R - A = 6$  ... (i)

∴ Rohini's age in 2004 =  $R - 10$  and Arvind's age in 2004 =  $A - 10$

∴  $(R - 10) = 3(A - 10)$

∴  $3A - R = 20$  ... (ii)

Solving (i) and (ii), we get

$R = 19$

∴ Rohini was born in year (2014 - 19 =) 1995.

Hence, **option 3**.

Alternatively,

Rohini's age in 2004 for the given options:

- 1984 : 20
- 1986 : 22
- 1995 : 9
- 2000 : 4

As Rohini's age was thrice as old as her brother, the correct answer should be option 3.

Hence, **option 3**.

31. Without loss of generality,  $p < q < r$

∴  $r - q = q - p = d$

$p, r - q$  and  $q - p$  are in G.P.

i.e.,  $p, d, d$  are in G.P.

So,  $p = d$

∴  $q = p + d = 2d$  and  $r = 3d$

∴  $p : q : r = 1 : 2 : 3$

Hence, **option 4**.

32.  $a + b = \log_{25}5 + \log_{25}15 = \log_{25}75 = \log_{25}25$

+  $\log_{25}3$

$a + b = 1 + \log_{25}3$

$a + b - 1 = \log_{25}3$

∴  $\log_{25}27 = 3\log_{25}3 = 3(a + b - 1)$

Hence, **option 3**.

33. Number of ways in which 10 students can sit =  $10!$

The number of ways in which two students (batchmates) sit together =  $9! \times 2$

∴ The number of ways in which the student can sit so that the two batchmates are not sitting next to each other =  $10! - 9! \times 2 = 9! \times 8 = 2903040$

Hence, **option 3**.

34. Assume that for price  $P$ , assume that Vodafone gives talk time of 100 seconds.

So, for the same price  $P$ , Airtel gives talk time of 79 (= 21% less than 100) seconds.

The post-paid talk time for the same price by Airtel and Vodafone is  $1.12 \times 79$  and  $100 \times 0.85$ , i.e., 88.48 seconds and 85 seconds respectively.

One can get  $88.48 - 85 = 3.48$  seconds more from Airtel post-paid service compared to the Vodafone post-paid service.

Required percentage =  $3.48/85 = 4.07$

The closest option is option 1.

Hence, **option 1**.

35. Let original service charges be Rs.  $x$ .

Rohan has paid  $x, 0.9x, (0.9 \times 0.89x =) 0.801x, (0.88 \times 0.89 \times 0.9x \approx) 0.705x, 0.55x$  for the five services.

Total payment done by Rohan  $\approx 3.956x$

Discount availed by Rohan  $\approx 1.044x$

Percentage discount  $\approx (1.044x/3.956x) \times 100 = 26.38$

Hence, **option 2**.

36. Let there be  $x$  and  $y$  inlet and outlet pipes respectively.

∴  $x + y = 11$  ... (i)

Assume that the capacity of the tank is 35 units.

So, inlet pipe fills 5 units and the outlet pipes empties 7 units of the tank in one hour.

The completely filled tank empties in 7 hours.

$$\therefore 7y - 5x = 5 \quad \dots \text{(ii)}$$

Solving the two equations, we get  $y = 5$  and  $x = 6$

Hence, **option 4**.

**37.** Let total number of families in the village be  $T$

Number of families own agricultural land,

$$n(A) = 0.22T$$

Number of families own mobile phone,

$$n(M) = 0.18T$$

Number of families own both agricultural land and mobile phone,  $n(A \cap M) = 1600$

Number of families own agricultural land or mobile phone,  $n(A \cup M) = T - 0.68T = 0.32T$

$$\therefore n(A \cup M) = n(A) + n(M) - n(A \cap M)$$

$$\therefore n(A \cap M) = 0.08T$$

$$0.08T = 1600 \Rightarrow T = 20000$$

Hence, **option 1**.

**38.** Let  $n$  members attended the board meeting.

$$\text{Number of handshakes} = n \times (n - 1) / 2 = 78$$

Solving this,  $n = 13$

Hence, **option 4**.

**39.** Let minimum number of pages to be printed be  $x$ .

$$\therefore 5000 + 1.8x = 8000 + 1.5x$$

Solving, we get  $x = 10000$

Hence, **option 2**.

**40.**  $Y$  is the centre of the circle.

Let  $r$  be the radius of the circle.

$$\therefore \text{Length of arc } XZ = \frac{1}{4}(2\pi r) = 10\pi$$

$$\therefore r = 20$$

$$\text{Arc of sector } XYZ = \frac{1}{4}(\pi r^2) = 100\pi$$

Hence, **option 3**.

**41.** Let the bus travels at speed ' $V$ ' km/hr for time ' $T$ ' hours in the morning.

$\therefore$  Distance travelled in the morning =  $VT$  km

$\therefore$  In the evening, it travels at speed ' $1.5V$ ' km/hr for ' $1.5T$ ' hours respectively.

$\therefore$  Distance travelled in the evening =  $1.5V \times 1.5T = 2.25VT$

$$\therefore \text{Average Speed} = \frac{\text{Total Distance}}{\text{Total Time}}$$

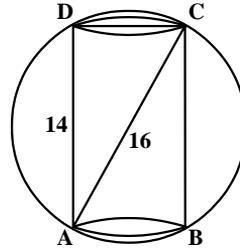
$$= \frac{VT + 2.25VT}{T + 1.5T}$$

$$= \frac{3.25V}{2.5} = 1.3V$$

$\therefore$  The average speed of the chartered bus for the entire journey is greater than its average speed in the morning by 30%.

Hence, **option 2**.

**42.**



$DC$  is diameter of the cylinder.

$$m\angle ADC = 90^\circ$$

$\therefore AC$  is the diameter of the sphere.

Thus,  $AC = 16$  and  $AD =$  height of the cylinder = 14

$$DC^2 = 16^2 - 14^2 = 60$$

$$\therefore \text{Radius}^2 = 60/4 = 15$$

$$\therefore \text{Volume of cylinder} = \pi r^2 h = \pi \times 15 \times 14 = 660$$

Hence, **option 4**.

**43.** Seema saves Rs. 900 in first three months.

Let she reach the given amount in  $X$  more months.

She would save  $300X + 50 + 50 \times 2 + 50 \times 3 + \dots + 50 \times X = 11400 - 900$

$$\therefore 300X + 50(1 + 2 + 3 + \dots + X) = 10500$$

$$\therefore X^2 + 13X - 420 = 0$$

On solving, we get  $X = 15$ .

Thus, in  $15 + 3 = 18$  months her savings will be Rs. 11,400.

Hence, **option 3**.

**44.** Sailesh earns Rs. 6,000 as commission from first Rs. 1,00,000.

Let his total sales =  $X$

$$\therefore \text{Total commission} = 6000 + 0.05(X - 100000) = 0.05X + 1000$$

$$\therefore X - 0.05X + 1000 = 265000$$

Solving, we get  $X = 280000$

Hence, **option 4**.

**45.** Assume that  $P$  does  $p$  units of work in one day.

$$\therefore \text{Total work} = 42p$$

So, Q and R do  $1.26p$  and  $(1.26 \times 1.5 =) 1.89p$  units of work in one day respectively.

$\therefore$  Total work done by Q and R in one day =  $1.26p + 1.89p = 3.15p$

So, Q and R can finish the work in  $(42p/3.15p \approx) 13$  days.

Hence, **option 2**.

**46.** P and Q are mixed in the ratio 1 : 4.5 i.e., 2 : 9.

Assume that 1 kg of P is mixed with 4.5 kg of Q.

1 kg of P has 0.45 kg of silver.

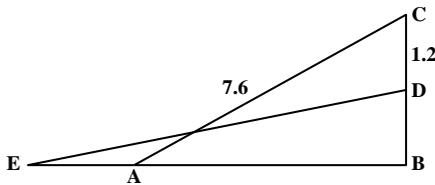
4.5 kg of Q has  $(0.3 \times 4.5 =) 1.35$  kg of silver and  $(0.35 \times 4.5 =) 1.575$  kg of copper.

Thus, the newly formed alloy of 5.5 kg has 1.8 kg of silver and 1.575 kg of copper.

$\therefore$  % of silver  $\approx 33$  and % of copper = 29

Hence, **option 1**.

**47.**



$AC = ED = 7.6$  and  $AB = 6.4$

From the given diagram ;  $BC^2 = 7.6^2 - 6.4^2 = 16.8$

$\therefore BC \approx 4.1$  m

When the ladder slips 1.2 m, its top edge would be at D at a height of  $4.1 - 1.2 \approx 2.9$  m

$\therefore BE^2 = 7.6^2 - 2.9^2 \approx 49$

$\therefore BE \approx 7$

$\therefore$  Ladder shifts approximately  $7 - 6.4 = 0.6$  m.

Hence, **option 2**.

**48.** Substituting values given in options, the equation is satisfied for  $x = 4$ .

Hence, **option 4**.

$$49. \left\{ \frac{4^{p+\frac{1}{4}} \times \sqrt{2 \times 2^p}}{2 \times \sqrt{2^{-p}}} \right\} = \left\{ \frac{4^p \times 4^{\frac{1}{4}} \times \sqrt{2} \times \sqrt{2^p}}{2 \times \sqrt{2^{-p}}} \right\}$$

$$= \left\{ \frac{2^{2p} \times \sqrt{2} \times \sqrt{2} \times \sqrt{2^p}}{2 \times \sqrt{2^{-p}}} \right\}$$

$$= 2^{2p} \times \sqrt{2^p} \times \sqrt{2^p} = 2^{3p}$$

$$\left\{ \frac{4^{p+\frac{1}{4}} \times \sqrt{2 \times 2^p}}{2 \times \sqrt{2^{-p}}} \right\}^{1/p} = (2^{3p})^{1/p} = 8$$

Hence, **option 2**.

**50.** We consider that the student fails in the first year if he fails in the first trimester.

Therefore, the probability that the student will complete the first year the first year in the Engineering College is approximately = Probability that he passes 1<sup>st</sup> trimester  $\times$  Probability that he passes 1<sup>st</sup> semester and is promoted to the second year) =  $0.92 \times 0.87 \approx 0.8$

Hence, **option 1**.

**51.** Using all the statements, we can fill the following data directly,

From 5,

**Chemical Engineer is offered job in India.**

So, Brad is offered job in India

Hence, **Carla is offered job at Germany.**

From 4 and 6,

Evan is from Mechanical branch,

So, **Frank is from IT branch;**

Hence, **Anthony is from Electrical branch** and **Carla is from Electronics branch.**

So the final arrangement is,

From the table we get,

Carla is the one from electronics department.

Hence, **option 3**.

**52.** Considering solution to the first question, The person in UAE has Metallurgy branch. Hence, **option 3**.

**53.** Considering solution to the first question, Brad -India -Chemical is the correct combination. Hence, **option 2**.

**54.** Considering solution to the first question, Frank joined IT Department in Australia. Hence, **option 1**.

**55.** Considering solution to the first question, Dinesh - UAE - Electronics is the correct combination.

Hence, **option 4**.

56. Let,

A = The breakfast doesn't have eggs  
 B = I will not go for a walk and will not have lunch.  
 From the logical deductions,  
 $AB = \sim B \sim A$   
 Also, and is replaced by or and vice versa.  
 So,  
 $\sim A$  = The breakfast has eggs.  
 $\sim B$  = I will go for a walk or will have lunch.  
 So, we get,  
 $\sim B \sim A$  = I will go for a walk or will have lunch, the breakfast has eggs.  
 Hence, **option 2**.

57. Let us rank their heights and their qualification on a scale from 1 to 6.  
 Rank 1 is the tallest and the most qualified and Rank 6 is the shortest and the least qualified.

Kamla is not the tallest. So Kamla's height can be any rank from 2 to 5.  
 Kripa is the least qualified amongst the daughters. So  $Kripa_Q = 6$  (sub-script Q and H denote rank for qualification and height respectively).

From st iv, v and vi, we conclude that  
 $Kamla_H > Kamlesh_H > Kriti_H > Kalpana_H > Kranti_H$   
 But Kamla is not be the tallest. Therefore Kripa is the tallest and Kamla is the 2<sup>nd</sup> tallest and the order follows as shown above.

From St ii,  $Kranti_Q = 1$ .  
 From St iii and from st vi, we conclude that  
 $Kalpana_Q > Kamlesh_Q > Kriti_Q > Kamla_Q$   
 Therefore on the basis of the qualification, Kalpana's rank is 2, Kamlesh's rank is 3, Kriti's rank is 4 and Kamla's rank is 5.  
 The following table can be regarding their height and qualification :

Name	Height	Qualification
Kamla	2	5
Kamlesh	3	3
Kirti	4	4
Kripa	1	6
Kranti	6	1
Kalpana	5	2

Decreasing order of height are the ranks starting from 1 upto 6.  
 Third tallest amongst all is Kamlesh  
 Hence, **option 2**.

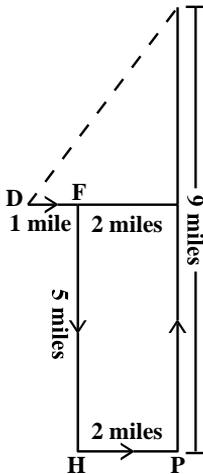
58. Most qualified is the person with rank 1.  
 The person with rank 1 is Kranti.  
 Hence, **option 4**.
59. The ranks in the increasing order of qualification are from 6 to 1.  
 Kriti's rank in decreasing order of qualification is 4.  
 Therefore Kriti's rank in the increasing order of qualification is 3.  
 Hence, **option 2**.
60. The ranks in the increasing order of height are from 6 to 1.  
 Kamla's rank in decreasing order of height is 2.  
 Therefore Kamla's rank in increasing order of height is 5.  
 Hence, **option 2**.
61. The Pattern here is,  
 $18 \times 2 + 1 = 37,$   
 $37 \times 2 + 2 = 76,$   
 $76 \times 2 + 3 = 155,$   
 So,  
 $155 \times 2 + 4 = 314,$   
 $314 \times 2 + 5 = 633,$   
 $633 \times 2 + 6 = 1272,$   
 Hence, **option 2**.
62. If no condition is imposed then we can select countries in  $2^3 - 1 = 7$  ways.  
 So, we have total 7 combinations.  
 Hence, **option 3**.  
**Note:-** This question is ambiguous, as it is asking number of countries. In that case, we can select only 3 countries. But we don't have options. So here we are assuming number different combinations are asked.
63. If only condition 1 is imposed then we can select,  
 USA-UAE and USA-UAE-UK.  
 So, we have two combination.  
 Hence, **option 2**.  
**Note:** This question is ambiguous, as it is asking number of countries. In that case, we can select 2 or 3 countries. But we don't have options. So here we are

assuming number of different combinations are asked.

64. If only condition 2 and 3 are imposed then we can select, UK-UAE, USA, USA-UAE. So, we can select 1 or 2 countries considering all possible combinations. Hence, **option 2**.

65. From the question W is the niece of X, So W is a female. In option A, We see that all X, Y, Z and W are brothers and sisters. In option B, W is father of Y. So, W is a male. Consider option C. It says X is Y's brother, Y is W's father and W is Z's sister. Hence W is X's niece. Hence, **option 3**.

66.



From the figure, the final position is E and the starting point is D.

$$\begin{aligned} \text{Distance DT} &= \text{Distance DF} + \text{Distance FT} \\ &= \text{Distance DF} + \text{Distance HP} \\ &= 1 + 2 \\ &= 3 \text{ miles.} \end{aligned}$$

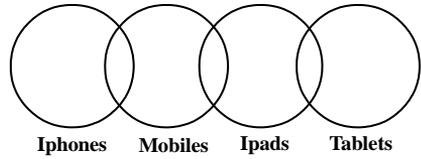
$$\begin{aligned} \text{Distance ET} &= \text{Distance EP} - \text{Distance TP} \\ &= \text{Distance EP} - \text{Distance FH} \\ &= 9 - 5 \\ &= 4 \text{ miles} \end{aligned}$$

From the figure, the distance between starting point and the end point is

$$\begin{aligned} (DE)^2 &= 3^2 + 4^2 \\ &= 9 + 16 \\ &= 25 \end{aligned}$$

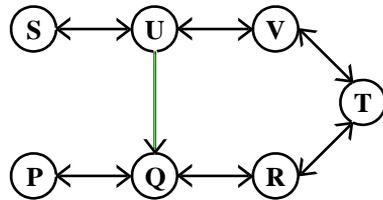
DE = 5 miles  
Hence, **option 3**.

67.



The statements i, ii and iii can be represented as shown above. From the figure, Set of iPhones do not intersect with the set of Ipads and the set of tablets, and the set of mobiles do not intersect with the set of tablets. Consider the conclusions, From the figure, first three conclusions are not true. In this set, the fourth conclusion cannot be concluded. Hence, **option 4**.

68.



From the figure, Excluding cities S and T cargo can go from city S to city T in 2 ways i.e S-U-Q-R-T and S-U-V-T. The shortest path from S to T is S-U-V-T. Therefore the minimum number of cities that the cargo has to cross in transit is 2.

Hence, **option 3**.

69. From the figure, Cargo can go from city P to city U in only one possible way i.e. P-Q-R-T-V-U. Going through this path, the cargo will have to pass through 4 cities. Hence, **option 2**.

70. Consider option A. The path is P-Q-R-U. We have to cross 2 intermediate cities in it. Consider option B. If we connect cities from P to S with a one way connection from cities S to P. The path formed will be P-Q-R-T-V-U. It becomes a longer path than option A. Using option C, the path formed is the shortest path. The path formed is P-Q-U. This smaller than that in option A.

Consider option D. The path formed using option D is longer compared to the path formed using option C. Hence options A, B, and D are eliminated.  
Hence, **option 3**.

**71.** Sum of 1½ ton Window ACs sold by Torrent Enterprises during April 2014 – March 2015  
= 0.19(Sum of number of units sold in April-14, May-14, Sep-14, Feb-15, Mar-15 and Aug-14) + 0.33(Sum of number of units sold in Jun-14, Jul-14, Dec-14, Oct-14, Nov-14 and Jan-15)  
= 0.19 × (1266 + 1268 + 1296 + 1340 + 1350 + 1296) + 0.33 × (1272 + 1292 + 1300 + 1298 + 1300 + 1330)  
= 0.19 × 7816 + 0.33 × 7772 = 1485.04 + 2571.36 ≈ 338  
Hence, **option 2**.

**72.** Units sold in Apr-14, May-14 and Sep-14 = 3830  
Units sold in Jun-14, Jul-14 and Dec-14 = 3864  
Units sold in Aug-14, Feb-15 and Mar-15 = 3986  
Units sold in Oct-14, Nov-14 and Jan-15 = 3928

WAC Type (Tonnage)	Apr-14, May-14 and Sep-14	Jun-14, Jul-14 and Dec-14	Aug-14, Feb-15 and Mar-15	Oct-14, Nov-14 and Jan-15	Total
Two Ton	766	966	1236	982	3950
One & Half Ton	728	1275	757	1296	4056
One Ton	536	464	1355	1021	3376
Half Ton	1800	1159	638	628	4226

Thus, the absolute difference between average annual sales (in units) of 1 ton and ½ ton is maximum.  
Hence, **option 1**.

**73.** Sales for various WAC types from Oct-14 to Mar-15:

Two ton:  $0.25 \times 1300 + 0.31(1340 + 1350) + 0.25(3928) = 2141$

One & Half ton:  $0.33 \times 1300 + 0.19(1340 + 1350) + 0.33(3928) = 2236$

One ton:  $0.12 \times 1300 + 0.34(1340 + 1350) + 0.26(3928) = 2092$

One & Half ton:  $0.3 \times 1300 + 0.16(1340 + 1350) + 0.16(3928) = 1449$

Referring to previous solution, the sales for various WAC types from Apr-14 to Sep-14:

Two ton:  $3950 - 2141 = 1809$

One & Half ton:  $4056 - 2236 = 1820$

One ton:  $3376 - 2092 = 1284$

One & Half ton:  $4226 - 1449 = 2777$

Half yearly sales performance for various types is:

$$2 \text{ ton} = \frac{\left(\frac{2141}{6}\right) - \left(\frac{1809}{6}\right)}{\left(\frac{1809}{6}\right)}$$

$$= \frac{2141 - 1809}{1809} \approx 0.18$$

$$1 \frac{1}{2} \text{ ton} = \frac{2236 - 1820}{1820} \approx 0.23$$

$$1 \text{ ton} = \frac{2092 - 1284}{1284} \approx 0.63$$

$$\frac{1}{2} \text{ ton} = \frac{1449 - 2777}{2777} \approx -0.48$$

Thus, second best performance in Half Yearly Sales Performance is of 1½ ton WACs.

Hence, **option 3**.

**74.** Monthly sales performance:

i. May 2014 = 2/1266

ii. June 2014 = 4/1268

iii. October 2014 = 2/1296

iv. February 2015 = 10/1330

10/1330 is the highest fraction.

Hence, **option 4**.

75. Sales volatility of 2 ton WAC

$$= \frac{419 - 253}{329} \approx 0.5$$

Sales volatility of  $1\frac{1}{2}$  ton WAC

$$= \frac{439 - 241}{338} \approx 0.59$$

Sales volatility of 1 ton WAC

$$= \frac{459 - 153}{281} \approx 1.09$$

Sales volatility of  $\frac{1}{2}$  ton WAC

$$= \frac{609 - 207}{352} \approx 1.14$$

Thus, 2 ton of WAC has the least Sales Volatility.

Hence, **option 4**.

76. The first table gives the difference between the average sales of various products over seven years.

e.g.  $A - B = 214.29$  crores

Hence, total difference between A and B over the seven year period is:

$$A - B = 214.29 \times 7 = 1500 \text{ crores}$$

Similarly,

$C - A = 900$  cr,  $A - D = 1000$  cr,  $A - E = 300$  cr,  $C - B = 2400$  cr,  $D - B = 500$  cr,  $E - B = 1200$  cr,  $C - D = 1900$  cr,  $C - E = 1200$  cr,  $E - D = 700$  cr

Let the sales of A in 2013 be  $a$  ('000s), C in 2010 be  $c$  ('000s) and D in 2012 be  $d$  ('000s).

The total sales, by volume, of each product are:

$$A = (6800 + a) \times 10^3$$

$$B = 5800 \times 10^3$$

$$C = (7400 + c) \times 10^3$$

$$D = (5700 + d) \times 10^3$$

$$E = 7000 \times 10^3$$

Hence, difference between number of units sold of B and E =  $1200 \times 10^3$

Assuming that each product is sold at the same cost in each year,

$$\text{Cost per product} = \frac{(1200 \text{ cr})}{(1200 \text{ thousand})} = \frac{(1200 \times 10^7)}{(1200 \times 10^3)} = 10000$$

$$\therefore \text{Total sales of B over the given period} = 5800 \times 10^3 \times 10000 = 5800 \times 10^7 = 5800 \text{ crores}$$

Similarly, total sales of E over the given period =  $7000 \times 10^3 \times 10000 = 7000 \times 10^7 = 7000$  crores

Using these values in the equations above,  $A = 7300$  crores,  $C = 8200$  crores,  $D = 6300$  crores

Also, total sales of  $A = (6800 + a) \times 10^3 \times 10000 = (6800 + a) \times 10^7 = (6800 + a)$  crores

Comparing this value with 7300 crores (found as total sales of A earlier),  $a = 7300 - 6800 = 500$  crores

Similarly,  $c = 800$  crores and  $d = 600$  crores

Hence, **option 3**.

77. Because the cost per product is assumed to be the same for each product for each year, the average sales (or total sales) for any year across products can be found on the basis of units sold itself.

i.e., the year with highest units sold will also have highest average annual sales.

$$2010: 500 + 600 + c + 1200 + 1600 = 3900 + c = 3900 + 800 = 4700$$

$$2011: 800 + 600 + 1400 + 1100 + 300 = 4200$$

$$2012: 1200 + 1000 + 1500 + d + 200 = 3900 + d = 3900 + 600 = 4500$$

$$2013: a + 1000 + 800 + 100 + 2000 = a + 3900 = 4400$$

Thus, the minimum sales are in 2011.

Hence, **option 2**.

78. Consider the solution to the first question of the set.

The product having the least total sales over the given period will also have the least average.

Hence, this product is B, with total sales of Rs. 5800 crores.

Hence, **option 2**.

79. This question can be directly answered from the table given in the question.

The least difference between average sales (among the given options) is between products D and E.

Hence, **option 4**.

80. Consider the solution to the earlier question where the average sale per year was found.

The same concept can be used for this question.

The values for 2010, 2011, 2012 and 2013 were already known.

Based on the options, find the values for 2009, 2014 and 2015.

$$2009: 1200 + 300 + 1500 + 600 + 1300 = 4900$$

$$2014: 1800 + 700 + 1200 + 900 + 1300 = 5900$$

$$2015: 1300 + 1600 + 1000 + 1800 + 300 = 6000$$

Since the sales increase from 2014 to 2015, option 4 can be directly eliminated as we need to find % decline.

For the other three values, it can be observed that the maximum % decline is in 2011.

Hence, **option 3**.

**81. Factor performance**

=  $0.3 \times$  Factor score in 2014 +  $0.35 \times$  Factor score of 2012 +  $0.35 \times$  Factor score in 2010  
Among the given options, Factor score of Macroeconomic Environment is the highest for 2010 and 2014.

For the year 2012, Factor Score of Business Sophistication is the highest and that of Macroeconomic Environment is second highest.

Thus, by comparing the values of Business Sophistication and Macroeconomic Environment, it can be concluded that Macroeconomic Environment has the best Factor Performance.

Hence, **option 4**.

**82. From the graph, it is clear that among the given options, the difference between the Factor Score of 2014 and Factor Score of 2012 is maximum and the Factor Score of 2010 is the least for Infrastructure.**

Therefore, Infrastructure has the best Factor Performance.

Hence, **option 3**.

**83. By observation,**

- i. Sum of Factor Scores of Infrastructure > Sum of Factor Scores of Technological Readiness
- ii. Sum of Factor Scores of Institutions > Sum of Factor Scores of Market Efficiency

So, it is sufficient to compare values of Infrastructure and Institution.

The total score for Infrastructure =  $4 + 4 + 5.25 = 13.25$

The total score for Institution =  $4.25 + 4.75 + 4.5 = 13.5$

Therefore, Institutions has the highest average across indices of 2010, 2012 and 2014.

Hence, **option 2**.

**84. Among the given options, the difference between Factor Score in 2014 and that in 2010 is minimum for Institutions.**

Hence, **option 2**.

**85. www.jay.com spent \$(27% of 557000) for 240 impressions.**

So, cost per advertisement on Website A =  $0.27 \times 557000 / 240 \approx \$ 626.63$

Similarly,

Cost per advertisement on Website B =  $0.22 \times 557000 / 370 \approx \$ 331.19$

Cost per advertisement on Website D =  $0.13 \times 557000 / 300 \approx \$ 241.37$

Cost per advertisement on Website E =  $0.20 \times 557000 / 150 \approx \$ 742.67$

Thus, Website D provide facility of least cost per advertisement.

Hence, **option 3**.

**86. Quality traffic provided by:**

$$\text{Website A} = \frac{2800}{120} = 23.33$$

$$\text{Website B} = \frac{2500}{60} = 41.67$$

$$\text{Website D} = \frac{3000}{80} = 37.5$$

$$\text{Website E} = \frac{3500}{40} = 87.5$$

Thus, Website E has provided maximum quality traffic.

Hence, **option 4**.

**87. Least the value of (Complete buying/Start buying) for a website, maximum is the leakage in online buying.**

Values of (Complete buying/Start buying) are (1200/2500 =) 0.18, (900/2000 =) 0.45, (1300/3000 =) 0.43 and (1600/3500 =) 0.46 for Website B, Website C, Website D and Website E respectively.

So, Website D sent traffic to www.jay.com with maximum leakage.

Hence, **option 3**.

- 88.** Efficiency of online display advertising expenditure on

$$\text{Website A} = \frac{2700}{27\% \text{ of } 557000} = \frac{10}{557}$$

Efficiency of online display advertising expenditure on

$$\text{Website B} = \frac{1200}{22\% \text{ of } 557000} = \frac{5.45}{557}$$

Efficiency of online display advertising expenditure on

$$\text{Website C} = \frac{900}{18\% \text{ of } 557000} = \frac{5}{557}$$

Efficiency of online display advertising expenditure on

$$\text{Website E} = \frac{1600}{20\% \text{ of } 557000} = \frac{8}{557}$$

Advertising budget was spent most efficiently on Website A.

Hence, **option 1**.

- 89.** Option 3 is negated in Paragraph 5, since it says that "Mittal was the biggest producer of 'long' products." The passage does not directly mention the overall biggest producer of steel.

Since Option 3 is incorrect, Option 4 is also incorrect.

Option 2 is incorrect since Paragraph 5 contradicts it.

Option 1 is mentioned in Paragraph 1.

Hence, the correct answer is **option 1**.

- 90.** Option 4 is mentioned in Paragraph 4. Option 2 is not mentioned in the passage. Options 1 and 4 are indirectly useful for achieving better pricing position.

Hence, the correct answer is **option 4**.

- 91.** Options 1, 3 and 4 are contradicted in Paragraph 7, start of Paragraph 3, and Paragraph 1 respectively.

Option 2 is mentioned in Paragraph 4.

Hence, the correct answer is **option 2**.

- 92.** Option 3 is mentioned in Paragraph 1 and the start of Paragraph 2.

The other options are not mentioned in the passage in the context of privatisation.

Hence, the correct answer is **option 3**.

- 93.** Option 2 is directly mentioned in the context of hyperbole at the end of Paragraph 2.

Hyperbole does not occur in other contexts in the passage.

Hence, the correct answer is **option 2**.

- 94.** The entire passage talks about Option 3. Since in Otlet's time, the requisite technologies required for invention and development were not available, he could not have done those (refer start of Paragraph 3 - where it says he did not invent the internet. Also refer Paragraph 5 and the start of Paragraph 6). All he did was prophesize that such a technology would one day exist.

Hence, the correct answer is **option 3**.

- 95.** Option 2 has been directly mentioned near the end of Paragraph 6.

The other options are not mentioned in this context.

Hence, the correct answer is **option 2**.

- 96.** Note the use of "envisioned" in Paragraph 3 (Option 1), and "looked far ahead to a future" (Option 2) in Paragraph 4 and the context in which they are used.

Also, note "larger utopian project", "permanent and lasting peace", and "collective spiritual enlightenment" (Option 3) in Paragraph 4.

Hence, the correct answer is **option 4**.

- 97.** The underlying point that the author makes throughout the passage is that there is a moral hazard which incentivizes lenders to lend without undertaking due diligence. This creates a financial crisis.

The other options are not the focus of the passage.

Hence, the correct answer is **option 1**.

- 98.** Option 1 is directly mentioned as the explanation of the moral hazard in Paragraph 5.

The other options are not mentioned in the passage.

Hence, the correct answer is **option 1**.

- 99.** Option 3 is mentioned in Paragraph 3. There is no support for the other options in the passage.

- Hence, the correct answer is **option 3**.
- 100.**Option 3 is mentioned in Paragraph 3.  
There is no support for the other options in the passage.  
Hence, the correct answer is **option 3**.
- 101.**Note the consistent use of terms related to politics:  
Paragraph 1: political socialization, political allegiances, politics  
Paragraph 4: political attitudes, political impact  
Paragraph 5: political views and sympathies  
Paragraph 6: politically conservative  
Paragraph 7: political bias  
Given the above clues, Option 1 is the answer.  
Hence, the correct answer is **option 1**.
- 102.**Option 3 is mentioned in the passage in Paragraph 1 using the same language as the question.  
Hence, the correct answer is **option 3**.
- 103.**Options 1, 2, and 3 are mentioned in Paragraphs 1, 2 and 3 respectively.  
Hence, the correct answer is **option 4**.
- 104.**Option 3 is mentioned in Paragraph 5. The other options do not have support in the passage.  
Hence, the correct answer is **option 3**.
- 105.**The passage starts off by saying that the beginning of the universe has long been a topic of discussion. This will ideally be followed by statement R, which mentions one theory: that the start of the universe was at a definite point in time. This is supported by the reasoning in statement P where it is said that a 'first cause' explains the universe's existence. Then statements S and Q put forth another theory by St. Augustine and elaborate upon it.  
The correct sequence is RPSQ.  
Hence, the correct answer is **option 2**.
- 106.**The passage opens with a statement on the author's eagerness to please his parents by running errands. Statement S exemplifies this by beginning to narrate an incident wherein the author is running an errand for his neighbours. This is followed by statement P, which describes an accident that occurred on the way. Then comes R, which shows the author's determination to carry out his task despite being in pain. Q says that the author allowed himself to cry only after reaching home.  
The correct sequence is SPRQ.  
Hence, the correct answer is **option 1**.
- 107.**The idiom 'to drive home' means 'to emphasize an important point'.  
None of the other options are related.  
Hence, the correct answer is **option 4**.
- 108.**'To have an axe to grind' is an idiom meaning 'to have a strong personal opinion about something that you want people to accept and that is the reason why you do something'. This fits with option 1.  
The other options are incorrect.  
Hence, the correct answer is **option 1**.
- 109.**"Carried away" means 'to become overly excited or involved and to take things too far'. This fits well in the first sentence.  
'To carry on' means 'to continue an activity or task'. It has been used correctly in sentence 2.  
'To carry out' means 'to put into execution'. Sentence 3 is correct.  
The correct idiom to be used in sentence 4 is 'get carried away' meaning 'to become overly excited'. This sentence incorrectly uses 'carried on'.  
Hence, the correct answer is **option 4**.
- 110.**The correct idiom to have been used in sentence 1 is 'hang on', meaning 'wait for a short time'. This sentence is incorrect.  
A player is said to have 'hung up his boots' when he/she decides to stop playing or retire. This idiom has been used correctly in sentence 2.  
'Hang around' means 'loiter or wait around'. This fits well in sentence 3.  
'Hanging on to' someone's words means 'listen very attentively to someone'. This sentence is correct.  
Hence, the correct answer is **option 1**.
- 111.**The adjective "grossly" is a hint here, since it expresses the negative nature of the word in the first blank. 'Grossly understood' makes no sense- eliminate option 4.

- It is absurd that the British would 'misrepresent' the toughness of local fighters; this is contextually incorrect since the sentence talks about fighting against them. Eliminate option 1.
- The word "similar" does not fit the second blank contextually; it is illogical that the same kind of terrain should discomfit the British. Eliminate option 3.
- Option 2 makes sense- the British had "underestimated" the local fighters, and they found the terrain very "different" from Europe.
- Hence, the correct answer is **option 2**.
- 112.**The fact that the processes were "complicated" implies that they went against reason. This validates "defied" in option 3.
- "To work around" is an idiom meaning 'to manage to do one's work while avoiding something'. "Around" fits the second blank.
- Hence, the correct answer is **option 3**.
- 113.**"Milieu" means 'surroundings, especially of a social or cultural nature'.
- The other options are unrelated in meaning to the given word.
- Hence, the correct answer is **option 3**.
- 114.**A "gaffe" is defined as 'a clumsy social error; a faux pas'. The word closest to this is "blunder".
- The other options are incorrect.
- Hence, the correct answer is **option 1**.
- 115.**The words "food shortage" and "die" point towards starvation. "Emaciated" meaning 'extremely thin, as a result of starvation' is an apt fit for this blank. Option 1 is validated.
- "Emancipated" means 'free, as from slavery or bondage'.
- "Enunciated" means 'to utter or pronounce words in an articulate manner'.
- "Elevated" means 'raised up'.
- None of these words gives the sentence logical coherence.
- Hence, the correct answer is **option 4**.
- 116.**"Removed" means 'to take something or someone away from'. Hence, the appropriate preposition succeeding it would be "from".
- Hence, the correct answer is **option 3**.
- 117.**"Qualm" means 'a feeling of doubt or uncertainty about whether you are doing the right thing' and is synonymous with "misgiving" meaning 'a feeling of doubt or apprehension about the outcome or consequences of something'.
- Hence, the correct answer is **option 2**.
- 118.**Since the sentence talks about pipes being used as a substitute for cigarettes, the appropriate word that would fit the blank is "alternative".
- For the second blank, 'likely to higher rates' is grammatically incorrect. So, eliminate option 1.
- People being responsible for higher rates of lung and mouth cancers is absurd. So, eliminate option 2.
- People cannot be involved with higher rates of lung and mouth cancers. So, eliminate option 4.
- Hence, the correct answer is **option 3**.
- 119.**The key to finding the word for the first blank lies in the word "plot" which indicates 'a plan made in secret by a group of people to do something illegal or harmful'. Thus, only "clandestinely" meaning 'secretly' qualifies for the blank.
- "Referendum" meaning 'a vote in which all the people in a country or an area are asked to give their opinion about', "invocation" meaning 'the action of invoking someone or something' and "upheaval" meaning 'violent or sudden change or disruption to something' cannot be **plotted** and can be eliminated.
- Hence, the correct answer is **option 2**.
- 120.**"Oxymoron" is a figure of speech in which two opposite ideas are joined to create an effect. Hence, option 2 with "act naturally" fits the criteria. "Act" meaning 'something done voluntarily' is contradictory to "naturally" which means 'instinctively'.
- Hence, the correct answer is **option 2**.
- 121.**"Oxymoron" is a figure of speech in which two opposite ideas are joined to create an effect. In option 1 with "original" is contradictory to "copy" which means 'an imitation of an original'.

In option 2 with “small” is contradictory to “crowd” meaning ‘large number of people collected together’.

In option 3 “open” is contradictory to “secret” which means ‘some information kept concealed’.

Hence, the correct answer is **option 4**.

**122.**The use of the conjunction “although” at the start of the sentence indicates presence of contrasting ideas before and after the comma.

Option 1 reflects the same meaning as first part of the sentence. So, eliminate option 1.

Options 3 and 4 do not pertain to the contradictory tone of the sentence. So, eliminate options 3 and 4.

Option 2 puts forth the fact that injuries that are not fatal can still be tragic and appropriately completes the sentence.

Hence, the correct answer is **option 2**.

**123.**“Cacophony” means ‘a harsh discordant mixture of sounds’ and “euphony” means ‘the quality of being pleasing to the ear.’ It can be concluded that the two words are antonyms of each other, with the first word having a negative connotation while the second has a positive connotation.

In option 1, “belligerent” means ‘hostile and aggressive’ and “serene” means ‘calm, peaceful, and untroubled’. These two words are opposite in meaning and also show a negative and positive connotation respectively. This is the correct option.

“Loneliness” and “peace” are not related in meaning. So eliminate option 2.

“Horrific” meaning ‘causing horror’ and “sympathetic” meaning ‘resulting from sympathy’ are not antonyms of each other. Eliminate option 3.

In option 4, “nocturnal” meaning ‘active during the night’ and “diurnal” meaning ‘active during the daytime’ are also opposite in meaning, making this a very close option. However, both words have a neutral connotation- we cannot say that either word is positive or negative. Therefore, this option loses out to option 1.

Hence, the correct answer is **option 1**.

**124.**“Blasphemous” means ‘An act of disrespect or impiety toward something regarded as sacred’.

“Ascetic” means ‘a person who abstains from the normal pleasures of life or denies himself or herself material satisfaction’.

“Reverent” means ‘Feeling or showing deep and solemn respect’.

“Inferior” means ‘lower in rank, status, or quality’

“Blarney” means ‘talk which aims to charm, flatter, or persuade’.

Hence, ‘reverent’ is antonymous to ‘blasphemous’.

Hence, the correct answer is **option 2**.