Table and Line Graph

Career Launcher

LRDI - 01

CEX-D-0273/18

Number of Questions : 25

Directions for questions 1 to 4: The table given below gives the number of graduates who got employment in different fields and their average salaries in different years.

Year	Number of graduates	Percentage of graduates employed in different fields				Average monthly salary (in rupees)		
		Finance	Marketing	Software	Others	Finance	Marketing	Software
2012	800	12	36	19	33	5450	5170	5290
2013	650	17	48	23	12	6380	6390	6440
2014	1100	23	43	21	13	7550	7630	7050
2015	1200	19	37	16	28	8920	8960	7760
2016	1050	32	32	20	16	9810	10,220	8640

Note: Percentage of graduates employed in different fields is rounded off to nearest integer.

1. What was the approximate value of the absolute difference between the number of students who got jobs in marketing and those who got jobs in finance over the given period?
(1) 760 (2) 810 (3) 830 (4) 800

2. In 2016, by how much (approximately) did total salary (in Rs. thousands) given to the candidates employed in the field of finance did exceed that to the candidates employed in the field of software?
(1) 1,482 (2) 1,560 (3) 1,600 (4) 1,670

3. Which year registered the maximum percentage increase in number of graduate students over the previous year during the given period?
(1) 2013 (2) 2014 (3) 2015 (4) 2016

4. In which year the average salary of graduates employed in the field of finance recorded the maximum percentage increase over the previous year during the given period?
(1) 2013 (2) 2015 (3) 2014 (4) 2016

Directions for questions 5 to 8: Answer the questions on the basis of the information given below.

In a summer camp, ten events are organised, which are categorised among five groups - Adventure Sports, Motor Sports, Water Sports, Underwater Activities and Extreme Sports. Each event of Adventure Sports, Motor Sports and Water Sports is evaluated out of 100. Events of Underwater Activities are evaluated out of 50 and events of Extreme Sports are evaluated out of 200. The final score of the student is calculated in the following manner. First, the group scores, out of 100, are obtained by averaging points in the events within the group. The final score is the simple average of the group scores. The cumulative sum of points for each students is the sum of points in all the events. The data for the top ten student's is given below. Some data has been intentionally removed from the table.

Students	Adventure Sports			Motor Sports	Water Sports		Underwater Activities		Extreme Sports		Final Score
	Bungee Jumping	Paragliding	Rock Climbing	Motor Racing	Swimming	Water Diving	Scuba Diving	Fishing	Rappelling	Kayaking	
A	91	87	92	97	96	94	47	43	186	190	93.2
B	92	86	95	92	??	94	46	46	189	187	??
C	93	82	92	94	94	98	49	48	180	192	93.8
D	94	88	88	98	93	93	43	42	187	193	92.2
E	97	95	93	90	95	93	42	44	184	184	91.4
F	95	93	97	96	98	98	41	49	191	185	94.6
G	94	97	91	92	94	94	46	42	186	190	??
H	91	87	98	94	95	93	41	48	183	185	92.2
I	99	89	94	98	96	94	44	46	182	190	94
J	96	90	90	94	98	90	47	43	192	192	94.4

5. If B and G have same final score, then find B's points in Swimming.
(1) 91 (2) 92 (3) 93 (4) 94

6. If D's cumulative sum of points is increased by 20, such that he has maximum possible 'Final score', then find the maximum possible points that D can have in Water Diving.
(1) 94 (2) 98 (3) 92 (4) 96

7. What can be the maximum possible increase in cumulative sum of points of 'I' such that his final score increases by 2?
(1) 37 (2) 27 (3) 31 (4) 24

8. If C's cumulative sum of points is increased by 32, then which of the following statements is definitely false?
(1) His maximum possible final score can be 97.4.
(2) His final score can increase by exactly 2 points.
(3) C's final score can be the highest among the given students.
(4) C can have equal average score in all groups.

Directions for questions 9 to 12: Answer the questions on the basis of the information given below.

In a country named XYZ, the courier business is broadly divided into International business (dealing with couriers sent and received from abroad) and Domestic business (dealing with couriers sent and received within the country). Total International business is of **$150 million** and total Domestic business is of **$70 million.** The table shown below gives percentage-wise break up of International business (**IB**) and Domestic business (**DB**) among the various companies in the sector for the year 2016.

Companies →	Blue Dart		Fed Ex		DHL		Agnel Express		Homepack	
Business →	IB	DB	IB	DB	IB	DB	IB	DB	IB	DB
Percentage wise share →	22	20	32	15	28	25	6	30	12	10

- All couriers are moved by air, road or rail. Couriers moved by air form the Air segment and couriers moved by road or rail form the Land segment.
- All couriers in Domestic business are moved by either road or rail.
- Of the aggregate Land segment, 60% worth of business is moved by road.
- All courier operations of Agnel Express are in the Land segment only.
- Agnel Express has 30% share of aggregate business catered by Land segment.

9. Of the International business, what is the ratio of business catered by Air segment to that catered by Land segment in 2016?
Fill 1 if "your answer is 8 : 1"
Fill 2 if "your answer is 6 : 1"
Fill 3 if "your answer is 4 : 1"
Fill 4 if "your answer is 7 : 1"

10. If Land segment accounted for $15 million of Fed Ex's International business, which company has the highest market share of the aggregate Land segment in 2016?
Fill 1 if "your answer is Agnel Express"
Fill 2 if "your answer is Fed Ex"
Fill 3 if "your answer is DHL"
Fill 4 if "your answer is Blue Dart"

11. In 2016, if DHL buys Homepack and forms a new group Deliver@Home by merging the two businesses together, then what can be the maximum value of the domestic business of this newly formed group moved by rail?
Fill 1 if "your answer is $15.5 million"
Fill 2 if "your answer is $20 million"
Fill 3 if "your answer is $30 million"
Fill 4 if "your answer is $24.5 million"

12. In 2016, which courier operator accounted for the maximum revenue across domestic and international markets taken together?
Fill 1 if "your answer is Blue Dart"
Fill 2 if "your answer is Fed Ex"
Fill 3 if "your answer is DHL"
Fill 4 if "your answer is Angel Express"

Directions for questions 13 to 16: Answer the questions on the basis of the information given below.

In a small company, there are 10 employees – P, Q, R, S, T, U, V, W, X, and Y – each one in a different grade. Sequentially, grade 1 is the lowest grade and grade 10 is the highest. Grades 1 to 10 were further divided into three categories: grade 1 to 3 in category I; grade 4 to 6 in category II and grade 7 to 10 in category III. Each employee had a certain part of his salary package as variable pay. However, the employees are eligible to get only a certain percentage of their variable pay, that particular percentage is called **Percentage of variable pay-out (PVP)** and is decided according to the **Annual performance rating (APR)** assigned to them after annual performance appraisal. The **Annual performance rating (APR)** are integers from 1 to 5, where sequentially, rating 1 is the lowest and rating 5 is the highest.

In Table - 1, PVP eligibility is illustrated according to the APR received in different grades and categories.

In Table - 2, partial data regarding the grade, PVP and APR of 10 employees are given.

Table – 1

Category	Grade	APR	PVP
Category I	1 to 3	1 or 2	0
		3	50
		4	90
		5	130
Category II	4 to 6	1 or 2	0
		3	45
		4	70
		5	110
Category III	7 to 10	1 or 2	0
		3	40
		4	60
		5	100

Table – 2

Employees	Grade	PVP	APR
P		40	
Q	4		2
R		0	
S	1		4
T			
U		70	
V	7		
W			
X			5
Y	9	0	

Employees belonging to a particular category received distinct APR. For example, if P, Q and R belong to category I, then they must have received distinct APR among 1 to 5.

13. If X is in grade 8, then what could be the numerically maximum grade of T?
(1) 10 (2) 6 (3) 5 (4) 3

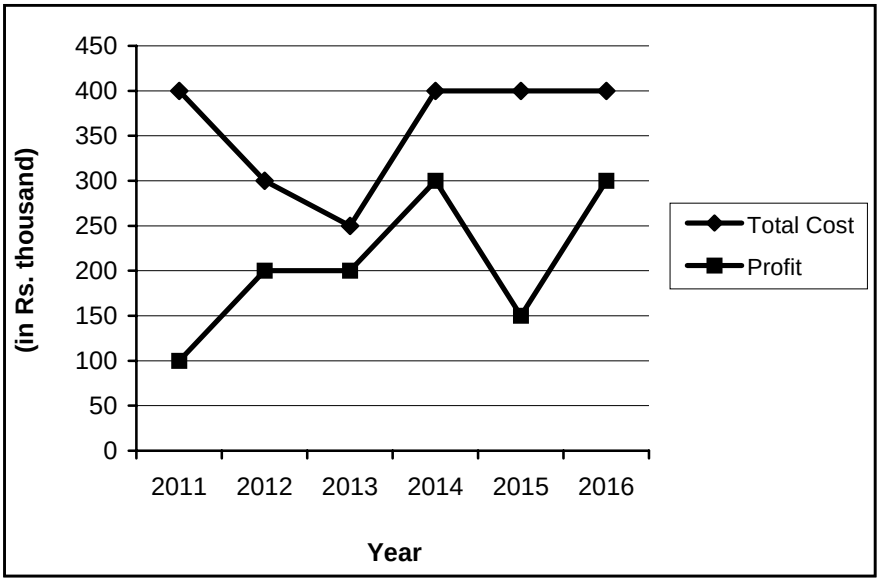
14. If T received an APR '4', then what is the PVP received by T?
(1) 70 (2) 90 (3) 60 (4) 40

15. If R received an APR '2' and both T and W received an APR '3', then which of the following employees could never belong to the same category?
(1) R, S, W (2) R, S, T (3) P, V, X, Y (4) Q, U, R

16. If 'V' received an APR '5', then how many distinct grades could 'T' possibly belong to?
(1) 2 (2) 4 (3) 5 (4) 6

Directions for questions 17 to 21: Answer the questions on the basis of the information given below.

The following line graph gives information regarding the cost incurred and profit earned in different years by the organisation XYZ Ltd.



Revenue = Total Cost + Profit

17. What was the approximate average profit during the given period?
(1) Rs. 196 thousands
(2) Rs. 225 thousands
(3) Rs. 216 thousands
(4) Rs. 208 thousands

18. In which year was profit as a percentage of total cost the maximum?
(1) 2012
(2) 2013
(3) 2014
(4) 2015

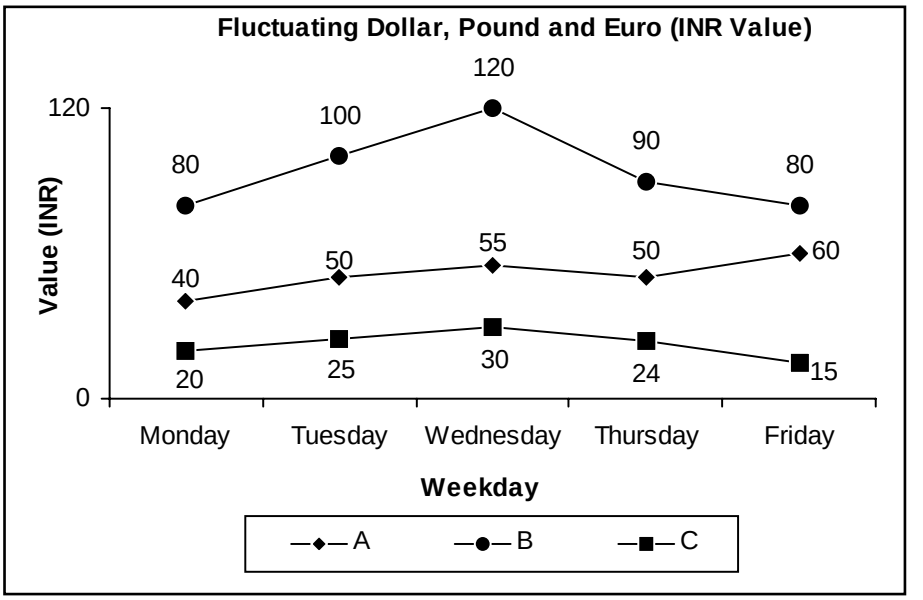
19. What was the revenue earned by XYZ Ltd. in the year 2012?
(1) Rs. 500
(2) Rs. 5,00,000
(3) Rs. 5,00,00,000
(4) None of these

20. The maximum revenue realised in
(1) 2011
(2) 2014
(3) 2016
(4) Both (2) and (3)

21. During the period of 2011 to 2016, which year experienced the maximum increase in the profit in comparison to its previous year?
(1) 2014
(2) 2011
(3) 2015
(4) 2016

Directions for questions 22 to 25: Answer the questions on the basis of the information given below.

During an unstable period, the values of Dollar, Pound and Euro fluctuated across the week from Monday to Friday. Their values across the week in Indian Rupees (INR) are given in the graph below. Dollar, Pound and Euro in the graph are represented as A, B and C, not necessarily in the same order.



Note: Assume that charges for conversion of currency is nil.

22. A person buys Dollars worth INR 3,60,000 on Monday, exchanged them for Indian Rupees on Tuesday and got them converted into Pounds immediately. How many Pounds he sould have possibly got?
(1) 1800 (2) 9000 (3) 12000 (4) 16000

23. A transaction is defined as converting one of these three currencies into INR or converting INR into one of these currencies. What is the maximum amount (in INR) a man could have earned by at most 4 transactions over the week if he has INR 22,000 with him to start with on Monday?
(1) 12,400 (2) 14,000 (3) 17,600 (4) 16,400

24. Exchange rate of currency X to currency Y is formulated as the amount of currency Y one would get with the Indian Rupees got by converting a unit of currency X into INR on a single day. If the exchange rate of Pound to Euro is 4 on one of these days, all of the following could be true EXCEPT
(1) Exchange rate of Pound to Euro on Monday is 0.5.
(2) Exchange rate of Dollar to Euro on Tuesday is 2.
(3) Exchange rate of Pound to Dollar on Wednesday is 2.18.
(4) Exchange rate of Euro to Pound on Friday is 0.25.

25. If exchange rate of Pound and Dollar is same on at least three days of the week, then which of the following cannot be the ratio of exchange rate of Pound to that of Euro on any day in the given week?
(1) 2 : 1 (2) 9 : 5 (3) 4 : 3 (4) 10 : 3

LRDI - 01
Answers and Explanations

CEX-D-0273/18

1	3	**2**	1	**3**	2	**4**	3	**5**	2	**6**	4	**7**	1	**8**	4	**9**	3	**10**	1
11	4	**12**	3	**13**	2	**14**	3	**15**	4	**16**	4	**17**	4	**18**	2	**19**	2	**20**	4
21	4	**22**	2	**23**	3	**24**	1	**25**	4										

1. 3 The number of students who got jobs in the field of marketing over the given period
= (800 × 0.36) + (650 × 0.48) + (1100 × 0.43) + (1200 × 0.37) + (1050 × 0.32) = 1853
Similarly, the number of students who got jobs in the field of finance over the given period ≃ 1023
Required difference = 830.

2. 1 Total salary offer to the candidates employed in the field of finance in 2016 = 1050 × 0.32 × 9810 = Rs. 32,96,160
Similarly, the total salary offer to the candidates employed in the field of software in 2016
= 1050 × 0.20 × 8640 = Rs. 18,14,400
Required difference ≈ Rs. 1481760 ≈ Rs. 1482 (in thousands).

3. 2 This can be clearly seen in the table that only 2014 and 2015 show an increase in number of graduates.
Percentage increase in number of graduates in the year 2014 $= \frac{1100-650}{650} \times 100 \approx 69.23\%$

Percentage increase in number of graduates in the year 2015 $= \frac{1200-1100}{1100} \times 100 \approx 9.1\%$

Hence, the maximum precentage increase in the number of graduate students was registered in the year 2014.

4. 3 Percentage increase in average salary in 2013

$= \frac{6380-5450}{5450} \times 100 \approx 17\%$

Percentage increase in average salary in 2014

$= \frac{7550-6380}{6380} \times 100 \approx 18.34\%$

Percentage increase in average salary in 2015

$= \frac{8920-7550}{7550} \approx 18.15\%$

Percentage increase in average salary in 2016

$= \frac{9810-8920}{8920} \times 100 \approx 9.98\%$

So, 2014 registered the maximum increase.

5. 2 G's average in
(i) Adventure Sports group = 94
(ii) Motor Sports group = 92
(iii) Water Sports group = 94
(iv) Underwater Activities group = 88
(v) Extreme Sports group = 94

G's final score = $\left(\frac{94+92+94+88+94}{5}\right) = 92.4$

Let B get x points in Swimming.
B's average in
(i) Adventure Sports group = 91
(ii) Motor Sports group = 92
(iii) Water Sports group = $\frac{(94+x)}{2}$
(iv) Underwater Activities group = 92
(v) Extreme Sports group = 94

$\therefore$ $91 + 92 + \frac{(94+x)}{2} + 92 + 94 = 92.4 \times 5$

$\Rightarrow 91 + 92 + 47 + \frac{x}{2} + 92 + 94 = 92.4 \times 5$

$\Rightarrow x = 92.$

6. 4 Final score is the average of the scores in each group.
If score increases in one of the events in Adventure Sports group then effective contribution to final score is 33.3% as average of 3 events is taken.
If score increases in Motor Sports group then effective contribution to final score is 100%.
If score increases in one of the events in Water Sports group then effective contribution to final score is 50% as average of 2 events is taken.
If score increases in Underwater Activities group then effective contribution to final score is 100%.
If score increases in one of the events in Extreme Sports group then effective contribution to final score

is 25% as average of 2 events is taken after halving the score in those events.
So, in order to have maximum possible final score, the increase in points should be in Motor Sports and Underwater Activities.
Maximum possible increase in the events of those two categories = (100 – 98) + (50 – 43) + (50 – 42) = 2 + 8 + 7 = 17 points.
We are left with (20 – 17) = 3 points
These 3 points can increase in Water Sports group.
So maximum possible points that D can have in Water Diving is (93 + 3) = 96.

7. 1 Minimum contribution to the final score is from Extreme Sports group.
Present average of Extreme Sports for I = 93
Maximum possible increase in Extreme Sports = (200 – 182) + (200 –190) = 18 + 10 = 28
If I gets 28 points more in Extreme Sports, then effective

$$\text{contribution to the final score} = \frac{(100-93)}{5} = 1.4$$

So we still need to increase 0.6 points in the final score.
For maximum increase now, we need to increase the points in Adventure Sports.
For every 3 points increase in any of the events of Adventure Sports the increase in final

$$\text{score} = \frac{1}{5}\left[\frac{3}{3}\right] = 0.2 \text{ points}$$

So, for 0.6 points increase in final score the increase in Adventure Sports should be $\left(\frac{0.6}{0.2}\right) \times 3 = 9$ points.

So overall increase in points such that final score of I increase by 2 and there is maximum increase in cumulative sum of points = 28 + 9 = 37.

8. 4 C's final score = 93.8

Statement 1: Consider C's points in Motor Racing, Scuba Diving, Fishing, Swimming and Water Diving as 100, 50, 50, 100 and 100 respectively.
So increment in total points = (100 – 94) + (50 – 49) + (50 – 48) + (100 – 94) + (100 – 98) = 17 points
So remaining 15 points can be distributed among the events of Adventure Sports.
So change in contribution to final score by Motor Sports

$$= \frac{6}{5} = 1.2$$

$$\text{Water Sports} = \left[\left(\frac{6+2}{\frac{2}{5}}\right)\right] = 0.8$$

$$\text{Underwater Activities} = \frac{3}{5} = 0.6$$

$$\text{Adventure Sports} = \frac{15}{\frac{3}{5}} = 1$$

So change in final score = 1.2 + 0.8 + 0.6 + 1 = 3.6
So final score can be 93.8 + 3.6 = 97.4
So statement 1 is true.

Statement 2: Consider the case when C's score in both the events of Extreme Sports become 200, there is an increment of 2 points in either Motor Sports or Underwater Activities and there is an increment of 2 points in Water Sports also. In this case the final score will increase by exactly 2 points.
Increase in total points = 20 + 8 +2 + 2 = 32

$$\text{Increase in final score} = \left(\frac{\frac{28}{4}}{5}\right) + \frac{2}{5} + \left(\frac{\frac{2}{2}}{5}\right)$$

= 1.4 + 0.4 +0.2 = 2.
So statement 2 is true.

Statement 3: Statement is true as it can be seen from the explanation of statement 1 that C's final score can be 97.4, which will be the highest among the given students in that case.

Statement 4: C cannot have equal average score in all the groups, as minimum average score that can be equal in all groups is 97. So in order to attain average score of 97 in all groups minimum points required
= 4 + 15 + 5 + 3 + 3 – 1 + 16 = 45
So, statement 4 is false.

Statement 5: Statement is true as in Adventure Sports group, C needs (7 + 18 + 8) = 33 points to get an average score of 100.

9. 3 Revenue generated by Agnel Express in DB = 30% of 70 million = \$21million
Revenue generated by Agnel Express in IB = 6% of 150 million = \$9 million
Total revenue generated by Agnel Express = 21 + 9 = \$30 million
Total revenue through Land = 30/0.3 = \$100 million
Note: \$70 million of revenue is generated in the domestic market.
Therefore, 100 – 70 = \$30million is generated in the international market (for Land).
Remaining \$120 million of International business is catered by Air segment, (which can be seen as in international market \$30 million is generated through land therefore, 150 – 30 = \$120million is generated through Air.)

$$\text{Required ratio} = \frac{120}{30} = 4:1.$$

10. 1 Revenue generated through land transportation:
By Agnel Express
In domestic = 30% of 70 million = $21million
In international = 6% of 150 million = $9 million
Total revenue = 21 + 9 = $30 million
By Fed Ex

	Revenue (In millions)
In Domestic	10.5
In international	15(given)

Total revenue = 10.5 + 15 = $25.5 million
Now, revenue generated by others in land transportation in domestic market.

Company	Revenue (In millions)
Blue Dart	14
DHL	17.5
Homepack	7

Note: Total revenue generated in the international market through Land transportation is $30 million in which $15 million is shared by Fed Ex (given) and $9 million by Agnel Express.
Therefore, maximum revenue from international market (through Land segment) any one of the three can get is [30 – (15 + 9)] = $6 million
So, out of the three, DHL can generate the maximum revenue which is equal to 17.5 + 6 = 23.5 million, which is still lower than that of Agnel Express.
Hence, Agnel Express generates the maximum revenue from the Land segment.

11. 4 As the question is talking about MAXIMUM, we can assume that the total revenue generated through domestic market by the group (i.e. percentage share of both DHL and Homepack) is through rails.
This is also possible because 40% of Domestic business or $28 million is moved by rail and 28 > 24.5
Hence, maximum revenue = (10 + 25 = 35)% of 70 million = $24.5 million

12. 3 Total revenue of Blue Dart = 22% of 150 + 20% of 70 = 33 + 14 = $47 million
Total revenue of Fed Ex = 32% of 150 + 15% of 70 = 48 + 10.5 = $58.5 million
Total revenue of DHL = 28% of 150 + 25% of 70 = 42 + 17.5 = $59.5 million
Total revenue of Angel Express = 6% of 150 + 30% of 70 = 9 + 21 = $30 million
Total revenue of Homepack = 12% of 150 + 10% of 70 = 18 + 7 = $25 million
Thus, DHL accounted for maximum revenue across domestic and internatioal markets taken together.

For questions 13 to 16:
Logically we can fill-up few more cells of Table – 2 as illustrated below:

Employees	Grade	PVP	APR
P	8 or 10	40	3
Q	4	0	2
R		0	1 or 2
S	1	90	4
T			
U	5 or 6	70	4
V	7		
W			
X			5
Y	9	0	1 or 2

13. 2 If X is in grade 8, then P will be definitely in grade 10. Hence, T can belong to one of the four grades – 2, 3, 5 or 6.
So, the highest grade T can be 6.

14. 3 At most one person could have received APR 4 in each category. It is known that in category I, S received APR 4 and in category II, U received APR 4. So, T must belong to category III. Hence, the PVP received by T must be 60%.

15. 4 If R received APR of '2' then we can say that he is definitely not in Category II as table – 2 clearly states that Q (who is in Grade 4 and hence from category II) received an APR of '2'.
If both T and W received an APR of '3', then neither of the two can be from grade '8' or grade '10' and hence from category III. This is because P, who belongs to category III, has already received an APR of '3'.

Let us now analyse each option -
(1) R, S, W – These three together can belong to category I
(2) R, S, T – These three together can belong to category I
(3) P, V, X, Y – These four together can belong to Category III.
(4) Q, U, R – We can see from the table that Q and U must belong to Category II. But it has already been concluded that R can never belong to category II. So these three do not belong to the same category.

16. 4 If V received an APR of '5', then T can belong to one of the grades among '2', '3', '5', '6', '8' or '10', that is 6 distinct grades.

17. 4 Average profit = $\frac{\text{(Sum of the profit over six years)}}{6}$

$= \frac{(100 + 200 + 200 + 300 + 150 + 300)}{6} \approx 208.33$

Hence, approximate average profit during the given period is Rs. 208 thousands.

18. 2

Year	Profit as a percentage of total cost
2011	$\frac{100}{400} \times 100 = 25\%$
2012	$\frac{200}{300} \times 100 \approx 66.67\%$
2013	$\frac{200}{250} \times 100 = 80\%$
2014	$\frac{300}{400} \times 100 = 75\%$
2015	$\frac{150}{400} \times 100 = 37.5\%$
2016	$\frac{300}{400} \times 100 = 75\%$

Hence, profit as a percentage of total cost was the maximum in the year 2013.

19. 2 Revenue = Cost + Profit = Rs. 300 + Rs. 200 (in thousand) = Rs. 5,00,000

20. 4 For maximum revenue, sum of profit and total cost should be maximum. For both the years 2014 and 2016, the required quantities are maximum, whose value is Rs. 700 thousands.

21. 4 Profit was increased by Rs. 150 thousand in 2016, as compared to 2015.

For questions 22 to 25 :

	Monday	Tuesday	Wednesday	Thursday	Friday
A	40	50	55	50	60
B	80	100	120	90	80
C	20	25	30	24	15

A, B and C are dollar, pound and Euro, not necessarily in the same order.

22. 2 From Monday to Tuesday, each of A, B and C increase by 25%. Thus, amount in INR the person would have on Tuesday is 360000 × 1.25 = 450000. For INR 4,50,000, the person can get $\frac{450000}{50}$, $\frac{450000}{100}$ or $\frac{450000}{25}$ pounds. Thus, 9000 is the only possibility and in that case, A will signify pounds.

23. 3 Maximum amount will be earned if the man converts INR 22,000 to B (or C) on Monday, carry them upto Wednesday and get them converted back to INR. This way, he would have increased his amount by 50%, i.e. INR 33,000. Now, we see that each of A, B and C are dropping on Thursday vis-à-vis INR. Thus, the man should carry INR 33,000 till Thursday, get them converted to currency A and then should get back the INR on Friday. The amount on Friday, hence, becomes INR 39,600. Gain = INR 17,600

24. 1 *Exchange rate of currency X to currency Y*

$\equiv \frac{\text{INR equivalent of X}}{\text{INR equivalent of Y}}$

If the day is Monday, B is pound and C is Euro.
If the day is Tuesday, B is pound and C is Euro.
If the day is Wednesday, B is pound and C is Euro.
The day cannot be Thursday.
If the day is Friday, A is pound and C is Euro.
Hence, we come to know that C is Euro. Thus, exchange rate of pound to sterling Euro is greater than 1 for all these weekdays. Option (1) cannot be true.

25. 4 Exchange rate of Pound and Dollar is same on three days of the week, so Pound and Dollar can be either B or C(in any order). So A is Euro.
All ratios are possible except 10 : 3.