There are four parts in this test: Logical Reasoning, Data Interpretation, Probability and Descriptive Statistics each containing 10 objective type questions. For each question you are given 4 alternative answers, only one of which is correct. Tick the right answer. There is no negative marking.

Logical reasoning

1. In March 2013, 15 new magazines appeared in the market. Seven of these magazines were entertainment magazines, five were journals of Current Affairs and three were aimed solely at women. By August 2013, only eight of these new magazines were still circulating in the market. Six of those that remained were entertainment magazines. Which one of the following can we infer?

   A] Only one of the magazines for women remained in the market.
   B] Only one of the Current Affairs magazines remained in the market
   C] Magazine readers prefer entertainment magazines to Current Affairs ones.
   D] At least one of the magazines that were cancelled was a Current Affairs magazine

2. Decide whether the data provided in the statements is sufficient to answer the question. Read both the statements and then answer
   Question: In which year did 'X' graduate?
   Statements:
   I) X graduated 3 years after his brother
   II) X's brother, who graduated in 1975, failed the second year of his schooling

   A] I alone is sufficient while II alone is not sufficient
   B] II alone is sufficient while I alone is not sufficient
   C] Neither I nor II is sufficient
   D] Both I and II together are sufficient

3. What is the value of $x^2 - y^2$?
   I) $x + y = 66$
   II) $xy = 9$

   A] I alone is sufficient while II alone is not sufficient
   B] II alone is sufficient while I alone is not sufficient
   C] Neither I nor II is sufficient
   D] Both I and II together are sufficient

4. You have a cube with an edge of length 100 cms. It is painted on all faces. You then cut it into smaller cubes, each having an edge of length 10 cms. How many of these smaller cubes will have 3 faces painted?

   A] 12
   B] 80
   C] 100
   D] 8

Directions for questions 8-9: Refer to the following information to answer the questions that follow. S1, S2, S3, S4, S5, S6, S7,S8, S9 & S10 are 10 students from college X. They all went for an internship into particular fields A, B, C, D and E. Four of them worked in two fields each in such a way, that none of them was doing internships in the same set of fields.

- S3 interned in A and E and earned the least.
- S1 worked in C, earned more than S5, S2 and S7 and had the third highest earning.
- S8 interned in B and earned less than only S4, who had two internships.
- S2 earned more than S7 but less than S5.
- S7 worked in A and earned more than S6, who interned with B and E.
- 2 students had D as their field.
- All the students had different earnings.
- S9 and S10 did not intern in the fields that S4 interned in
- S9 and S10 interned in A
- C and D were not taken together by any student.

5. Which 2 fields did S4 intern in?
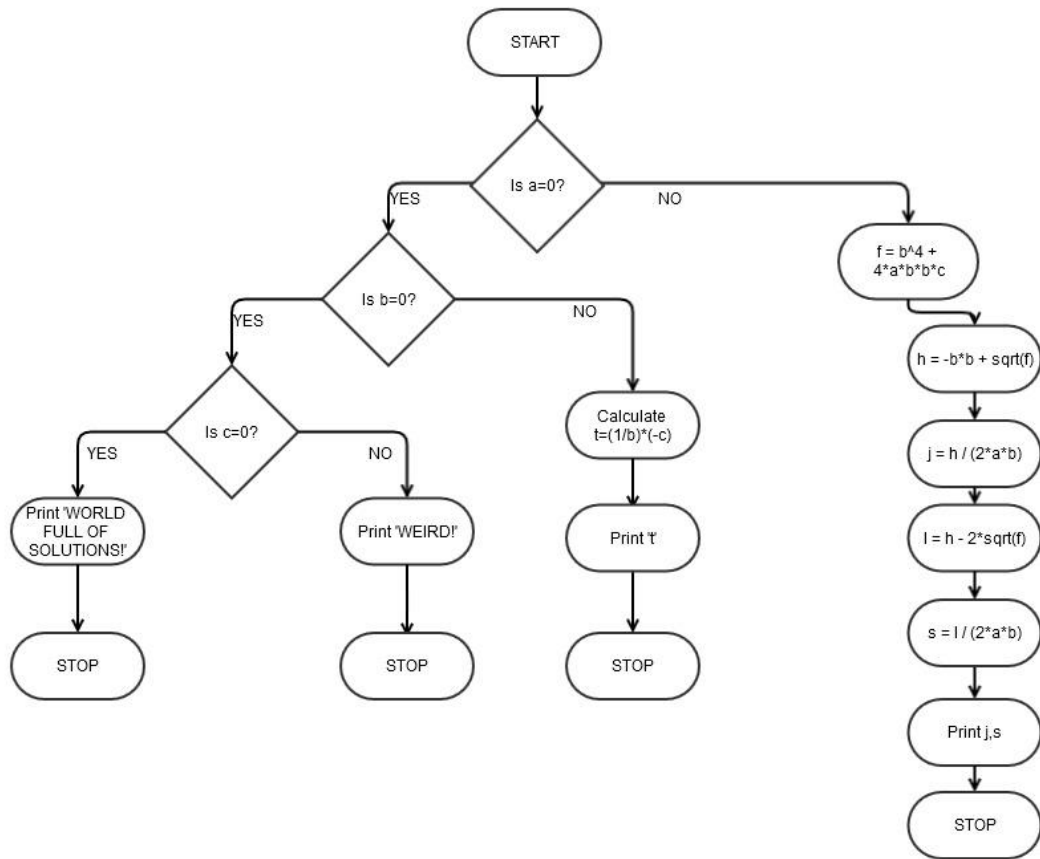   A] B, E
   B] A, E
   C] A, B
   D] None of these

6. Which of the following fields had the most number of interns?
   A] B
   B] E
   C] B or E
   D] None of these

7. If N=6 and X(1)=21, X(2)=7, X(3)=19, X(4)=3, X(5)=15, X(6)=0. Using the following algorithm, find the values of M and m.
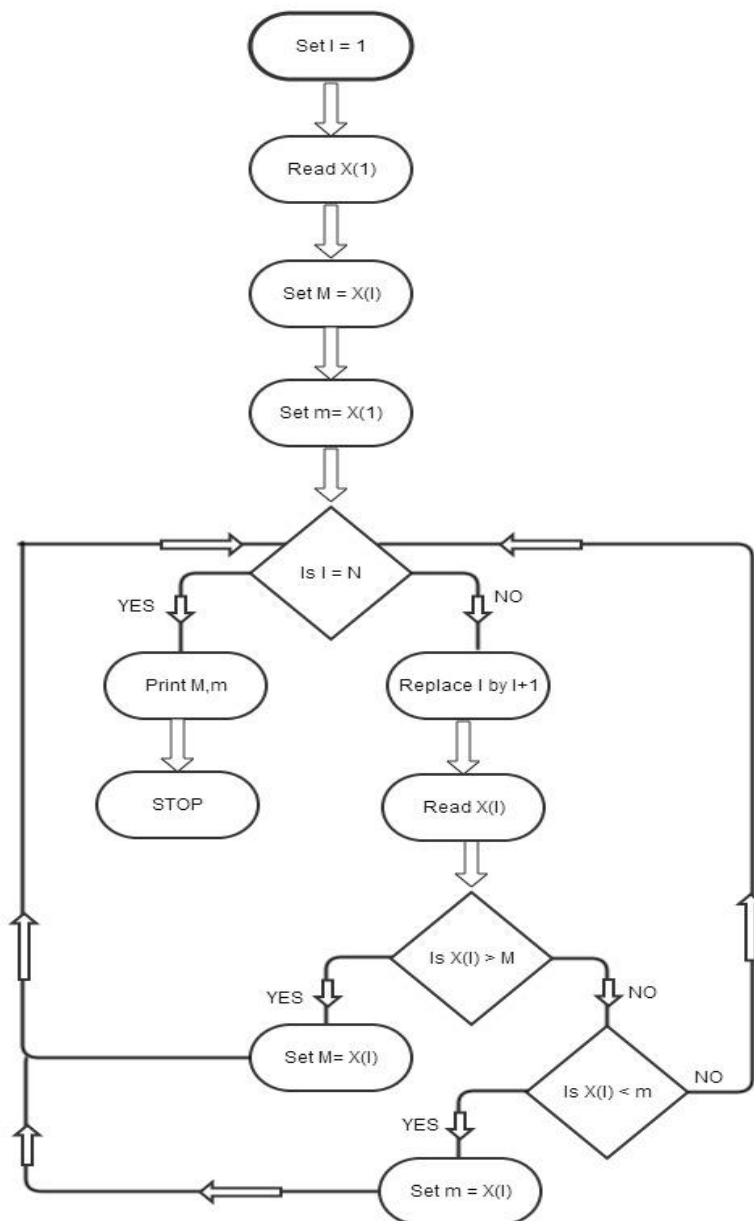
A] M=19, m=3

B] M=21, m=0

C] M=19, m=0

D] M=21, m=3
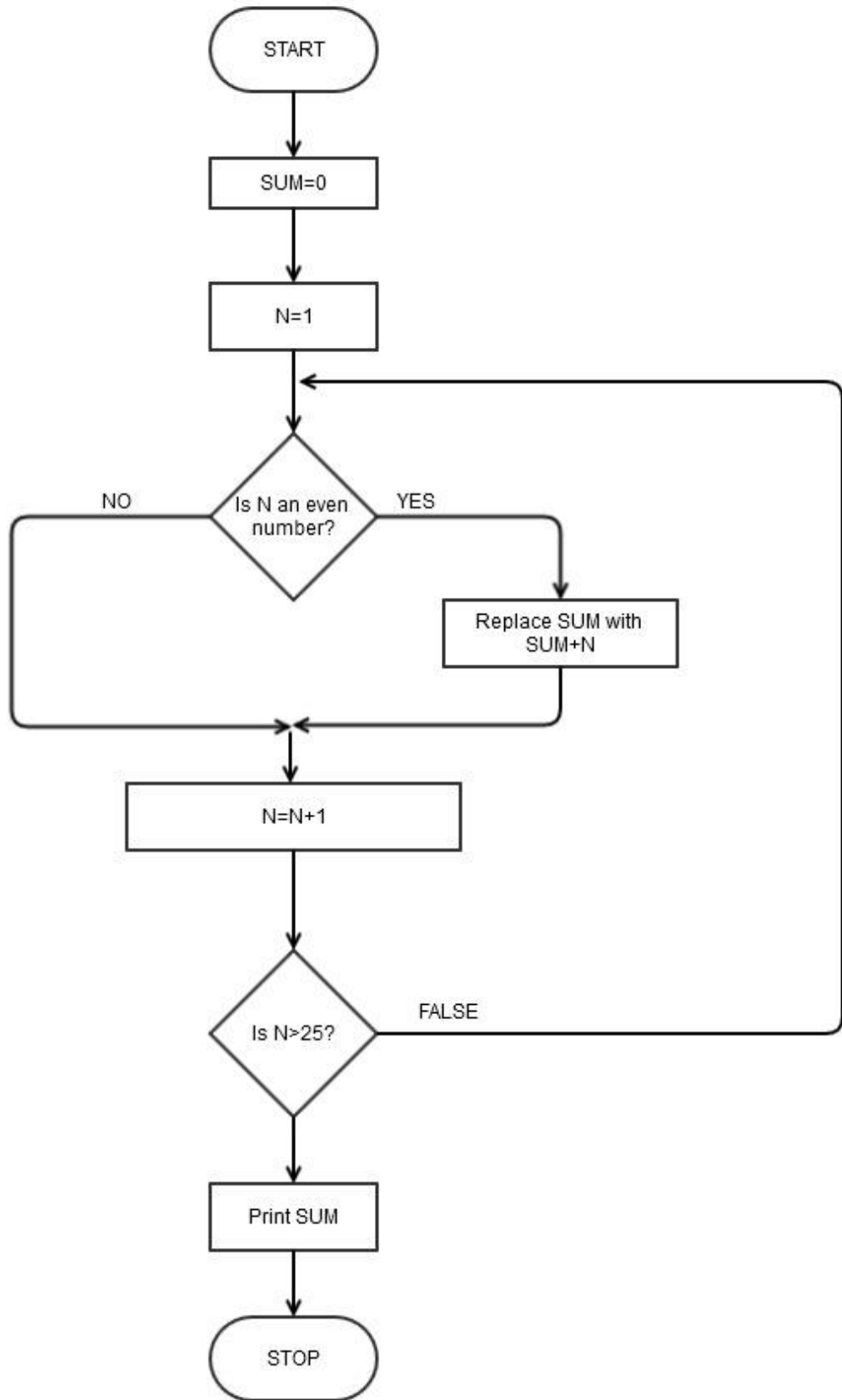
8. Let a=7, b=4 and c=(-11). Using the following algorithm, find the values of j and s.

A] j=1, s=-1.57
B] j=-1.57, s=1
C] WORLD FULL OF SOLUTIONS
D] j=0, s=1

9. Based on the same algorithm above, find the output if a=b=0, c=5
   A] WORLD FULL OF SOLUTIONS
   B] WEIRD
   C] j=s=25
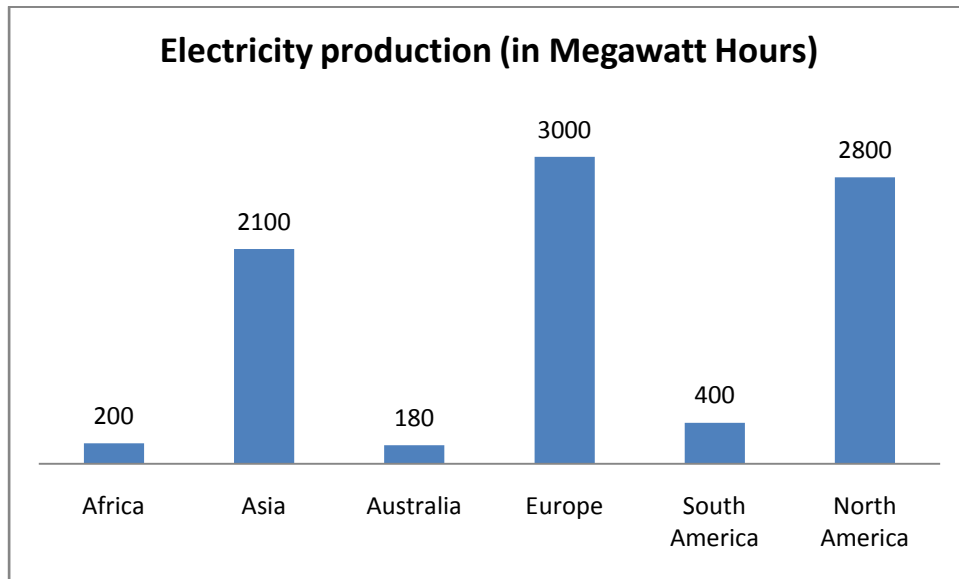   D] t=(-5)

10. What is the output of the following algorithm?

A] 182
B] 184
C] 25
D] 325

Data interpretation

Answer questions 11-14 on the basis of the following two diagrams:

Chart 1: Continent-wise electricity production in Megawatt Hours: (1 megawatt hour= 1,000,000 watt hours) for year X:

Chart 2: Table of percentage population across continents, in year X:

Continent	Percentage population
Africa	13
Asia	60
Australia	1
Europe	12
South America	9
North America	5

11. If the population of these 6 continents in year X was 8,000,000,000, which continent produced the highest watt-hours electricity per person?
    A] Europe
    B] North America
    C] South America
    D] Australia

12. During year X, if United States accounted for $4/5^{th}$ of the electricity production in North America and India accounted for $1/20^{th}$ of the electricity production in Asia. The ratio of electricity production in USA to that of in India is approximately:
    A] 5:1
    B] 5:2
    C] 21:1
    D] 11: 2

13. By what percentage was the population of Europe greater/lesser than the population of Africa?

    A] -1%

    B] -7.7%

    C] +8.3%

    D] +1%

14. Suppose that the population of these 6 continents uniformly increased by 10% in year (X+1) and that the electricity produced (in Megawatt Hours) remained the same as that in year X. If we assume that the electricity produced is equally divided across the population, what is the percentage change in the electricity available to every person in each of the continents?

    A] -10%

    B] +9.1%

    C] +10%

    D] -9.1%

Answer questions 15-17 based on the following table:

Table 1: Season statistics for the ABC League basketball matches during the years 2005-2010. Points are earned as follows: **1 point from free throws, 2 points from field goals made from within the 3-point line and 3 points for field goals made from outside the 3-point line.**

Year	Total Points Scored	2 points field goals achieved	2 points field goals attempted	1 point free throws achieved	1 point free throws attempted
2009-2010	7998	3020	6000	1568	2005
2008-2009	8251	3047	6333	1500	2034
2007-2008	8232	2437	6886	1654	2146
2006-2007	7440	2021	6454	1634	2178
2005-2006	8998	2437	6217	1634	2015

15. What percentage of points scored during 2006-2007 came from 2 point field goals?

    A] 29%

    B] 76%

    C] 54%

    D] 78%

16. If in year 2008-2009, the success rate for 3 points basket was 50%, what was the number of 3 points baskets attempted?

    A] 2922

    B] 438

    C] 974

    D] 260

17. In year 2010-2011, the number of 1 point free throws achieved by the team increased by 50% keeping the 2 points goals and 3 points baskets achieved constant. Then what was the total of points scored in year 2010-2011?

    A] 9776

    B] 8782

    C] 6465

    D] 8005

Answer questions 18-20 with reference to the following diagram:

Chart 3: The following line chart depicts Mr. A's income and expenditure, for years 1 to 7.
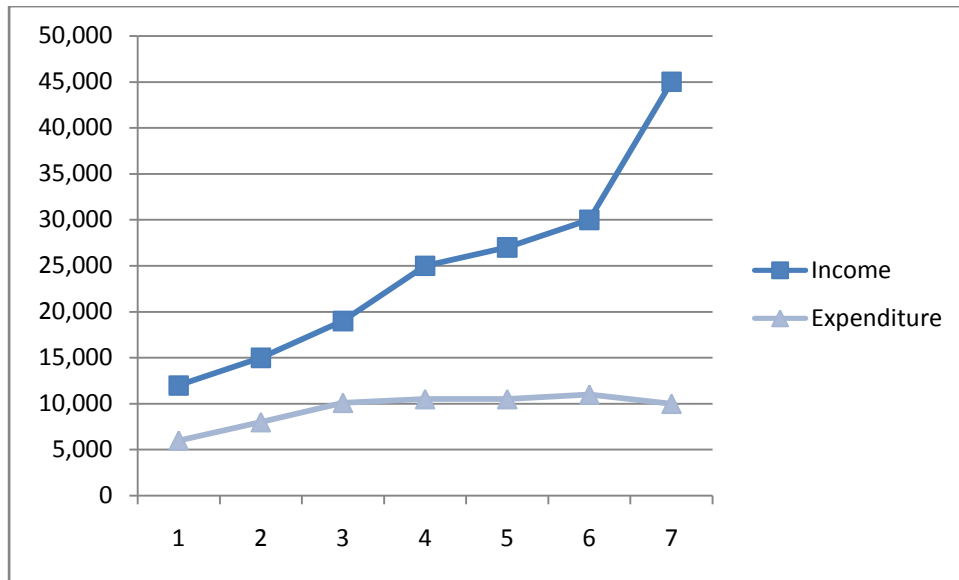
18. Which of the following can be inferred from the graph?

    A] The difference between Mr. A's income and expenditure was less than ten thousand dollars in more than half the years shown

    B] Mr. A's expenditure was never less than 40% of his income in this 7 year period

    C] The ratio of Mr. A's expenditure to income rose every year in this 7 year period

    D] The percentage change in Mr. A's expenditure from year 1 to year 7 is more than the percentage change in Mr. A's income from year 1 to year 7

19. Considering only those years in which Mr. A's expenditure increased over the previous year; in which pair of years was the percentage increase in expenditure the least?

    A] From year 1 to year 2

    B] From year 3 to year 4

    C] From year 6 to year 7

    D] From year 4 to year 5

20. If savings is defined as income minus expenditure; between which two years was the percentage increase in savings over the previous year, the highest?

    A] From year 6 to year 7

    B] From year 5 to year 6

    C] From year 4 to year 5

    D] From year 3 to year 4

Probability

21. Thirty percent of citizens in country X own real estate property, Fifty percent own gold and six percent own both assets. What percentage own real estate property but not gold?

    A] 24%

    B] 64%

    C] 26%

    D] 37%

22. There are 500 companies listed in a certain stock exchange. Of these 500, 150 are Public sector firms, 200 are MNCs and the remaining are Family owned firms. If 2 firms are randomly selected from these 500, what is the probability that one is a Family owned firm and the other is not?

    A] 15/499

    B] 14/49

    C] 210/499

    D] 21/50

23. To a certain conference, each firm can send two employee representatives, on the condition that one of them is a male and the other a female. If 15 firms were represented in this conference, what is the probability that no two females are seated next to each other? (Assume that all 30 members are seated in a single row of seats)

    A] 1/2

    B] 14!/30!

    C] 15!/30!

    D] 28/30!

24. If the price of Gold increases, the probability that demand for Gold in India will reduce is 0.15. The probability that the price of Gold will increase is 0.65. What is the probability that the price of gold increases and the demand for Gold in India does not reduce?

    A] 0.85

    B] 0.55

    C] 0.29

    D] 0.11

25. An experiment involves checking two keys to see whether they fit into a given lock and recording Yes ('Y') or No ('N'). What is the sample space of this experiment?

    A] {Y, N}

    B] {Y,Y,N,N}

    C] {YY,YN,NY,NN}

    D] None of these

26. A soccer team plays 60% of its games in the daytime and 40% in the night. It wins 35% of the night games and 50% of the day games it plays. You hear that this team lost their last game. What is the probability that it was played at night?

    A]   0.752
    B]   0.464
    C]   0.125
    D]   0.388

27. Person A lies in 70% of cases whereas person B independently speaks the truth in 15% of the cases. What is the probability that they contradict each other while narrating the same incident?

    A]   0.36
    B]   0.105
    C]   0.3
    D]   0.255

28. A smuggler wants to transfer his smuggled goods from city A to city B. There are three police check-posts between these two cities. Assume that there is no communication among the check-posts. The probabilities of him being caught at these three stops are 0.7, 0.5 and 0.3 respectively. What is the probability that he successfully transfers his goods?

    A]   0.105
    B]   0.5
    C]   0.245
    D]   0.045

29. Let A, B, C, and D be four events for which and P(A or B) = 0.6, P(A) = 0.2, P(C or D) = 0.6, and P(C) = 0.5. The events A and B are mutually exclusive, and the events C and D are independent. What is P(D)?

    A]   0.2
    B]   0.4
    C]   0.6
    D]   0.8

30. The odds for A winning a race are 5:15. What is the probability that he loses?

    A]   1/3
    B]   3/4
    C]   1/2
    D]   4/5

Statistics

31. For the Mathematics scores of a particular class, the variance is σ^2 If each student's score is increased by β points, then variance of the set of new scores is,

A] σ^2

B] $\beta^2\sigma^2$

C] $\beta + \sigma^2$

D] $\beta^2 + \sigma^2$

32. The mean of a set of observations is $\bar{x}$. If each observation is divided by α ($\alpha \neq 0$), and then is increased by 15, the mean of new set is

A] $\bar{x}/\alpha$

B] $(\bar{x}+15)/\alpha$

C] $(\bar{x}+15\alpha)/\alpha$

D] $\alpha\bar{x} + 15$

33. Consider the data **y, y+a, y+2a,....,y+na** and the deviations of these observations from their mean. The mean of these deviations is,

A] $\{n(n+1)a\}/(2n+1)$

B] $\{n(n-1)a\}/(2n+1)$

C] $(n+1)a/2n$

D] None of these

Question 34 is based on the information given in the table below:

The following table represents the average salary in two companies A and B, for the years 2010 and 2011.

Company	Number of Employees		Average Salary (in Rupees)	
A	2010	2011	2010	2011
	n_A	n_A	50,000	50,000
B	2010	2011	2010	2011
	n_B	n_B+5	65,000	52,000

34. If in the year 2010, the number of employees in A was 6 less than the number in B, what is the ratio $n_A : n_B$? (Assume that the total amount paid by company B on salaries, is equal in 2010 and 2011)

A] 3:7

B] 7:10

C] 16:25

D] 8:21

Questions 35-37 are based on the information given below:
The maximum price of a particular stock A, was recorded for the last 13 trading days. The observations (in Rs.) were as follows:

$$28, 27, 38, 28, 26, 27, 29, 29, 32, 30, 30, 28, 35$$

35. What was the median price of the stock for last 13 days?
   A] 30
   B] 29
   C] 28
   D] 31

36. What was the mode of daily prices of stock A over last 13 days?
   A] 30
   B] 29
   C] 28
   D] 31

37. Suppose that the maximum prices for another stock B, for each of these 13 days were:

$$19, 18, 20, 29, 26, 29, 29, 29, 22, 28, 34, 41, 39$$

   Which stock's price had higher variance?
   A] Stock A
   B] Stock B
   C] Both experienced equal variation
   D] Information insufficient

38. If the variance of three numbers a, b, c is 5, the variance of 9a, 9b, 9c is
   A] 45   B] $\frac{5}{9}$ C] $\frac{9}{5}$ D] None of these

Please answer questions 39 - 40 based on following instructions
A survey was conducted on 100 households. We collected data about the number of cattle in each of these households. Following is the frequency distribution of cattle size:

Cattle in the household (in 10's)	Frequency
0-2	22
3-5	32
6-8	41
9-11	3
12-14	2

39. What is the mean cattle size among these households? (Rounded to the closest integer)
   A] 4
   B] 3
   C] 6
   D] 5

40. Which is the median class of this data?
    A] 6-8
    B] 0-2
    C] 3-5
    D] 4-7