

## STATISTICS - PYQ

1. Suppose a population A has 100 observations 101, 102, ..... 200 and other population B has 100 observations 151, 152, ..... 250. If  $V_A$  and  $V_B$  represent the variance of two population

respectively then  $\frac{V_A}{V_B}$  is- [AIEEE-2006]

- (1)  $9/4$       (2)  $4/9$       (3)  $2/3$       (4) 1

2. The average marks of boys in a class 52 and that of girls is 42. The average marks of boys and girls combined is 50 then the percentage of boys in the class is- [AIEEE-2007]

- (1) 20      (2) 80      (3) 60      (4) 40

3. The mean of the numbers a, b, 8, 5, 10 is 6 and the variance is 6.80 then which one of the following gives possible values of a and b ? [AIEEE-2008]

- (1) a = 0, b = 7      (2) a = 5, b = 2  
(3) a = 1, b = 6      (4) a = 3, b = 4

4. If the mean deviation of the numbers 1, 1 + d, 1 + 2d, ..., 1 + 100d from their mean is 255, then that d is equal to- [AIEEE-2009]

- (1) 10.1      (2) 20.2      (3) 10.0      (4) 20.0

5. For two data sets each of size is 5, the variances are given to be 4 and 5 and the corresponding means are given to be 2 and 4 respectively, then the variance of the combined data set is :- [AIEEE-2010]

- (1)  $\frac{5}{2}$       (2)  $\frac{11}{2}$       (3) 6      (4)  $\frac{13}{2}$

6. If the mean deviation about the median of the numbers a, 2a, ....., 50a is 50, then |a| equals:- [AIEEE-2011]

- (1) 4      (2) 5      (3) 2      (4) 3

7. A scientist is weighing each of 30 fishes. Their mean weight worked out is 30 gm and a standard deviation of 2 gm. Later, it was found that the measuring scale was misaligned and always under reported every fish weight by 2 gm. The correct mean and standard deviation (in gm) of fishes are respectively: [AIEEE-2011]

- (1) 28, 4      (2) 32, 2      (3) 32, 4      (4) 28, 2

8. **Statement-1** : The variance of first n odd natural numbers is  $\frac{n^2 - 1}{3}$ .

**Statement-2** : The sum of first n odd natural numbers is  $n^2$  and the sum of squares of first n odd natural numbers is  $\frac{n(4n^2 + 1)}{3}$ .

[AIEEE-2012 (Online)]

- (1) Statement-1 is true, Statement-2 is true and Statement-2 is the correct explanation of Statement-1.  
(2) Statement-1 is true, Statement-2 is true and Statement-2 is not the correct explanation of statement-1.  
(3) Statement-1 is true, Statement-2 is false.  
(4) Statement-1 is false, Statement-2 is true.

9. The frequency distribution of daily working expenditure of families in a locality is as follows. If the mode of the distribution is Rs. 140 then the value of b is :-

Expenditure in Rs.	0-50	50-100	100-150	150-200	200-250
No. of	24	33	37	b	25

[AIEEE-2012 (Online)]

- (1) 34      (2) 31      (3) 26      (4) 36

10. The median of 100 observations grouped in classes of equal width is 25. If the median class interval is 20 – 30 and the number of observation less than 20 is 45, then the frequency of median class is :- [AIEEE-2012 (Online)]

- (1) 12      (2) 20      (3) 10      (4) 15

11. If the mean of 4, 7, 2, 8, 6 and 'a' is 7, then the mean deviation from the median of these observation is :- [AIEEE-2012 (Online)]

- (1) 5      (2) 8      (3) 3      (4) 1

12. All the students of a class performed poorly in Mathematics. The teacher decided to give grace marks of 10 to each of the students. Which of the following statistical measures will not change even after the grace marks were given ? [JEE (Main)-2013]

- (1) mean      (2) median      (3) mode      (4) variance

13. The variance of first 50 even natural numbers is:- [JEE (Main)-2014]

- (1)  $\frac{833}{4}$       (2) 833      (3) 437      (4)  $\frac{437}{4}$

14. In a set of  $2n$  distinct observations, each of the observation below the median of all the observations is increased by 5 and each of the remaining observations is decreased by 3. Then the mean of the new set of observations :  
**[JEE (Main)-2014 (Online)]**  
 (1) increases by 1 (2) decreases by 2  
 (3) increases by 2 (4) decreases by 1
15. Let  $\bar{X}$  and M.D. be the mean and the mean deviation about  $\bar{X}$  of  $n$  observation  $x_i, i = 1, 2, \dots, n$ . If each of the observation is increased by 5, then the new mean and the mean deviation about the new mean respectively, are :-  
**[JEE (Main)-2014 (Online)]**  
 (1)  $\bar{X} + 5$ , M.D. (2)  $\bar{X} + 5$ , M.D. + 5  
 (3)  $\bar{X}$ , M.D. (4)  $\bar{X}$ , M.D. + 5
16. Let  $\bar{x}$ ,  $M$  and  $\sigma^2$  be respectively the mean, mode and variance of  $n$  observations  $x_1, x_2, \dots, x_n$  and  $d_i = -x_i - a, i = 1, 2, \dots, n$ , where  $a$  is any number.  
**[JEE (Main)-2014 (Online)]**  
**Statement I :** Variance of  $d_1, d_2, \dots, d_n$  is  $\sigma^2$ .  
**Statement II :** Mean and mode of  $d_1, d_2, \dots, d_n$  are  $-\bar{x} - a$  and  $-M - a$ , respectively  
 (1) Statement I and statement II are both true  
 (2) Statement I and statement II are both false  
 (3) Statement I is true and Statement II is false  
 (4) Statement I is false and Statement II is true
17. A factory is operating in two shifts, day and night, with 70 and 30 workers respectively. If per day mean wage of the day shift workers is ₹ 54 and per day mean wage of all the workers is ₹ 60, then per day mean wage of the night shift workers (in ₹) is:  
**[JEE (Main)-2015 (Online)]**  
 (1) 75 (2) 74 (3) 69 (4) 66
18. The mean of data set comprising of 16 observation is 16. If one of the observation valued 16 is deleted and three new observation valued 3, 4 and 5 are added to the data, then the mean of resultant data, is -  
**[JEE (Main)-2015]**  
 (1) 16.8 (2) 16.0 (3) 15.8 (4) 14.0
19. If the standard deviation of the numbers 2, 3,  $a$  and 11 is 3.5, then which of the following is true ?  
**[JEE (Main)-2016]**  
 (1)  $3a^2 - 23a + 44 = 0$  (2)  $3a^2 - 26a + 55 = 0$   
 (3)  $3a^2 - 32a + 84 = 0$  (4)  $3a^2 - 34a + 91 = 0$
20. The mean age of 25 teachers in a school is 40 years. A teacher retires at the age of 60 years and a new teacher is appointed in his place. If now the mean age of the teachers in this school is 39 years, then the age (in years) of the newly appointed teacher is :  
**[JEE (Main)-2017 (Online)]**  
 (1) 25 (2) 35 (3) 30 (4) 40
21. The sum of 100 observations and the sum of their squares are 400 and 2475, respectively. Later on, three observations, 3, 4 and 5, were found to be incorrect. If the incorrect observations are omitted, then the variance of the remaining observations is:  
**[JEE (Main)-2017 (Online)]**  
 (1) 9.00 (2) 8.50 (3) 8.00 (4) 8.25
22. If  $\sum_{i=1}^9 (x_i - 5) = 9$  and  $\sum_{i=1}^9 (x_i - 5)^2 = 45$ , then the standard deviation of the 9 items  $x_1, x_2, \dots, x_9$  is-  
**[JEE (Main)-2018]**  
 (1) 4 (2) 2 (3) 3 (4) 9
23. If the mean of the data : 7, 8, 9, 7, 8, 7,  $\lambda$ , 8 is 8, then the variance of this data is :-  
**[JEE (Main)-2018 (Online)]**  
 (1) 2 (2)  $\frac{7}{8}$  (3)  $\frac{9}{8}$  (4) 1
24. The mean of a set of 30 observations is 75. If each observation is multiplied by a non-zero number  $\lambda$  and then each of them is decreased by 25, their mean remains the same. Then  $\lambda$  is equal to  
**[JEE (Main)-2018 (Online)]**  
 (1)  $\frac{2}{3}$  (2)  $\frac{10}{3}$  (3)  $\frac{1}{3}$  (4)  $\frac{4}{3}$
25. The mean and the standard deviation (s.d.) of five observations are 9 and 0, respectively. If one of the observations is changed such that the mean of the new set of five observations becomes 10, then their s.d. is:  
**[JEE (Main)-2018 (Online)]**  
 (1) 0 (2) 1 (3) 4 (4) 2

PREVIOUS YEARS QUESTIONS				ANSWER KEY				Exercise-II		
Que.	1	2	3	4	5	6	7	8	9	10
Ans.	4	2	4	1	2	1	2	3	4	3
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	3	4	2	1	1	1	2	4	3	2
Que.	21	22	23	24	25					
Ans.	1	2	4	4	4					