STATISTICS - EXERCISE

1. If in an examination different weights are assigned to different subjects Physics (2), Chemistry (1), English (1), Mathematics (2) A student scores 60 in Physics, 70 in Chemistry, 70 in English and 80 in Mathematics, then weighted mean is-

(1) 60 (2) 70 (3) 80 (4) 85

2. If the mean of the series $x_1, x_2, \ldots\ldots, x_n$ is $\bar{x}$, then the mean of the series $x_i + 2i$, $i = 1, 2, \ldots\ldots, n$ will be-

(1) $\bar{x}+n$ (2) $\bar{x}+n+1$ (3) $\bar{x}+2$ (4) $\bar{x}+2n$

3. The mean of the following freq. table is 50 and $\Sigma f = 120$

class	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
f	17	f_1	32	f_2	19

the missing frequencies are-

(1) 28, 24 (2) 24, 36
(3) 36, 28 (4) None of these

4. A student obtained 75%, 80%, 85% marks in three subjects. If the marks of another subject is added then his average marks can not be less than-

(1) 60% (2) 65% (3) 80% (4) 90%

5. The mean deviation of the series a, a + d, a + 2d, ..., a + 2nd from its mean is-

(1) $\frac{n+1}{2n+1}|d|$ (2) $\frac{n(n+1)}{2n+1}|d|$

(3) $\frac{n(n-1)}{2n+1}|d|$ (4) none of these

6. The A.M. of n observation is $\bar{x}$. If the sum of $n-4$ observations is K, then the mean of remaining observations is-

(1) $\frac{\bar{x}-K}{4}$ (2) $\frac{n\bar{x}-K}{n-4}$

(3) $\frac{n\bar{x}-K}{4}$ (4) $\frac{n\bar{x}-(n-4)K}{4}$

7. The mean of values $1, \frac{1}{2}, \frac{1}{3}, \ldots\ldots \frac{1}{n}$ which have frequencies 1, 2, 3, ... n resp., is :-

(1) $\frac{2n+1}{3}$ (2) $\frac{2}{n}$ (3) $\frac{n+1}{2}$ (4) $\frac{2}{n+1}$

8. The weighted mean of first n natural numbers when their weights are equal to corresponding natural number, is :-

(1) $\frac{n+1}{2}$ (2) $\frac{2n+1}{3}$

(3) $\frac{(n+1)(2n+1)}{6}$ (4) None of these

9. The average income of a group of persons is $\bar{x}$ and that of another group is $\bar{y}$. If the number of persons of both group are in the ratio 4 : 3, then average income of combined group is :-

(1) $\frac{\bar{x}+\bar{y}}{7}$ (2) $\frac{3\bar{x}+4\bar{y}}{7}$

(3) $\frac{4\bar{x}+3\bar{y}}{7}$ (4) None of these

10. The geometric mean of the first n terms of the series a, ar, ar^2, ..., is-

(1) $ar^{n/2}$ (2) ar^n (3) $ar^{(n-1)/2}$ (4) ar^{n-1}

11. Median of the following freq. dist.

x_i	3	6	10	12	7	15
f_i	3	4	2	8	13	10

(1) 7 (2) 10
(3) 8.5 (4) None of these

12. Mean deviation from the mean for the observation –1, 0, 4 is-

(1) $\sqrt{\frac{14}{3}}$ (2) $\frac{2}{3}$

(3) 2 (4) none of these

13. If $\sum_{i=1}^{10}(x_i - 15) = 12$ and $\sum_{i=1}^{10}(x_i - 15)^2 = 18$ then the S.D. of observations $x_1, x_2 \ldots\ldots\ldots\ldots x_{10}$ is :-

(1) $\frac{2}{5}$ (2) $\frac{3}{5}$

(3) $\frac{4}{5}$ (4) None of these

14. The variance of series a, a + d, a + 2d, ..., a + 2nd is :-

(1) $\frac{n(n+1)}{2}d^2$ (2) $\frac{n(n+1)}{3}d^2$

(3) $\frac{n(n+1)}{6}d^2$ (4) $\frac{n(n+1)}{12}d^2$

15. The variance of 2, 4, 6, 8, 10 is-

(1) 8 (2) $\sqrt{8}$
(3) 6 (4) none of these

16. The standard deviation of variate x_i is σ. Then standard deviation of the variate $\frac{ax_i+b}{c}$, where a , b, c are constants is-

(1) $\left(\frac{a}{c}\right)\sigma$ (2) $\left|\frac{a}{c}\right|\sigma$

(3) $\left(\frac{a^2}{c^2}\right)\sigma$ (4) None of these

17. The A.M. of the series 1, 2, 4, 8, 16, ..., 2^n is-

(1) $\frac{2^n-1}{n}$ (2) $\frac{2^{n+1}-1}{n+1}$ (3) $\frac{2^n-1}{n+1}$ (4) $\frac{2^{n+1}-1}{n}$

18. The mean of values 0, 1, 2, ..., n when their weights are 1, ${}^nC_1$, ${}^nC_2$, ..., ${}^nC_n$, resp., is

(1) $\frac{2^n}{n+1}$ (2) $\frac{n+1}{2}$ (3) $\frac{2^{n+1}}{n(n+1)}$ (4) $\frac{n}{2}$

19. The S.D. of first n odd natural numbers is :-

(1) $\sqrt{\frac{n^2-1}{2}}$ (2) $\sqrt{\frac{n^2-1}{3}}$ (3) $\sqrt{\frac{n^2-1}{6}}$ (4) $\sqrt{\frac{n^2-1}{12}}$

20. The mean of n values of a distribution is $\bar{x}$. If its first value is increased by 1 , second by 2, ... then the mean of new values will be-

(1) $\bar{x}+n$ (2) $\bar{x}+\frac{n}{2}$

(3) $\bar{x}+\left(\frac{n+1}{2}\right)$ (4) None of these

21. A man spends equal ammount on purchasing three kinds of pens at the rate 5 Rs/pen, 10 Rs/pen, 20 Rs/pen, then average cost of one pen is :-

(1) 10 Rs (2) $\frac{35}{3}$ Rs

(3) $\frac{60}{7}$ Rs (4) None of these

22. The average age of a teacher and three students is 20 years. If all students are of equal age and the difference between the age of the teacher and that of a student is 20 years, then the age of the teacher is-

(1) 25 years (2) 30 years
(3) 35 years (4) 45 years

23. Median of ${}^{2n}C_0$, ${}^{2n}C_1$, ${}^{2n}C_2$,....,${}^{2n}C_n$ (when n is even) is-

(1) ${}^{2n}C_{\frac{n-1}{2}}$ (2) ${}^{2n}C_{\frac{n}{2}}$

(3) ${}^{2n}C_{\frac{n+1}{2}}$ (4) None of these

24. The median of 19 observations of a group is 30. If two observations with values 8 and 32 are further included, then the median of the new group of 21 observation will be

(1) 28 (2) 30 (3) 32 (4) 34

25. A group of 10 observations has mean 5 and S.D. $2\sqrt{6}$. another group of 20 observations has mean 5 and S.D. $3\sqrt{2}$, then the S.D. of combined group of 30 observations is :-

(1) $\sqrt{5}$ (2) $2\sqrt{5}$

(3) $3\sqrt{5}$ (4) None of these

26. Some particulars of the distribution of weights of boys and girls in a class are given below :

	Boys	Girls
Number	100	50
Mean Weight	60 kg	45 kg
Variance	25	9

Which of the distributions is more variable ?

(1) Boys
(2) Girls
(3) Variation in both the distributions is same
(4) Data insufficient

27. The mean of Mathematics marks of 100 students of a class is 72. If the number of boys is 70 and the mean of their marks is 75. Then the mean of the marks of girls in the class will be-

(1) 60 (2) 62 (3) 65 (4) 68

28. In an experiment with 15 observations on x, the following results were available $\Sigma x^2 = 2830$, $\Sigma x = 170$. One observation that was 20 was found to be wrong and it was replaced by its correct value 30. Then the corrected variance is-

(1) 8.33 (2) 78 (3) 188.66 (4) 177.33

29. In a series of 2n observations, half of them equal a and remaining half equal –a. If the standard deviation of the observations is 2, then $|a|$ equals

(1) 2 (2) $\sqrt{2}$ (3) $\frac{1}{n}$ (4) $\frac{\sqrt{2}}{n}$

30. Let $x_1, x_2,.....,x_n$ be n observations such that $\sum x_i^2 = 400$ and $\sum x_i = 80$. Then a possible value of n among the following is -

(1) 12 (2) 9 (3) 18 (4) 15

ANSWER KEY Exercise-I

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	**2**	**2**	**1**	**1**	**2**	**3**	**4**	**2**	**3**	**3**
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	**3**	**3**	**2**	**2**	**1**	**2**	**2**	**4**	**2**	**3**
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	**3**	**3**	**2**	**2**	**2**	**1**	**3**	**2**	**1**	**3**