

Additional Problems For Self Practice (APSP)

PART - I : PRACTICE TEST PAPER

This Section is not meant for classroom discussion. It is being given to promote self-study and self testing amongst the Resonance students.

Max. Marks : 120

Max. Time : 1 Hr.

Important Instructions :

1. The test is of **1 hour** duration and max. marks 120.
2. The test consists **30** questions, **4 marks** each.
3. Only one choice is correct **1 mark** will be deducted for incorrect response. No deduction from the total score will be made if no response is indicated for an item in the answer sheet.
4. There is only one correct response for each question. Filling up more than one response in any question will be treated as wrong response and marks for wrong response will be deducted accordingly as per instructions 3 above.

1. The mean weight of 150 person in a group is 60 kg. The mean weight of men in the group is 70 kg and that of women is 55kg. Find the number of men.
 (1) 50 (2) 75 (3) 100 (4) 25
2. Then mean of 11 observations is 25. If each observation is decreased by 5, the new mean will be
 (1) 25 (2) 30 (3) 20 (4) 15
3. The marks of some students were listed out of a maximum 60. The standard deviation of marks was found to be 5. Subsequently the marks raised to a maximum of 100 and variance of new marks was calculated .The new variance
 (1) $\frac{25}{3}$ (2) $\frac{625}{3}$ (3) $\frac{625}{9}$ (4) $\frac{15}{9}$
4. Range of data 13, 14, 19, 21, 17, 14, 14, 12 is
 (1) 7 (2) 14 (3) 9 (4) 21
5. Variance of first 10 natural numbers is
 (1) $\frac{133}{4}$ (2) $\frac{33}{4}$ (3) 33 (4) $\frac{33}{2}$
6. Find the median of values 12, 17, 19, 8, 4, 23, 27
 (1) 27 (2) 23 (3) 17 (4) 18
7. Find the mode of the data 3, 1, 1, 2, 3, 0, -3, 4, 1 2, 3, 3, 5
 (1) 1 (2) 2 (3) 0 (4) 3
8. Coefficient of range 5, 2, 4, 3, 8, 11, is
 (1) $\frac{9}{13}$ (2) $\frac{1}{11}$ (3) $\frac{6}{10}$ (4) $\frac{6}{16}$
9. If difference between mean and mode is 3, the difference between mean and median is
 (1) 3 (2) 1 (3) 4 (4) 2

- 10 Mode of the data:

x_i (variable)	frequency
x_1	f_1
x_2	f_2
x_3	f_3
x_4	f_4

- (1) 4C_2 (2) 8C_2 (3) 8C_4 (4) 4C_3
11. If $\sum_{i=1}^{11} (x_i - 4) = 11$ and $\sum_{i=1}^{11} (x_i - 4)^2 = 44$ then find variance of $x_1, x_2, x_3, \dots, x_{11}$.
 (1) 4 (2) 3 (3) 7 (4) 11
12. Mean of 1, 4, 7, 10, 13,n terms is
 (1) $(3n-1)n$ (2) $(3n-1) \frac{n}{2}$ (3) $\frac{3n-1}{2}$ (4) $(3n-1)$
13. If $\text{var}(x_i) = \lambda$ then $\text{var}(2x_i + 3)$ is
 (1) $2\lambda + 3$ (2) $2\lambda_2$ (3) 4λ (4) $4\lambda + 9$
14. If S. D. of $x_1, x_2, x_3, \dots, x_4$ is 3 then S. D of $-4x_1, -4x_2, \dots, -4x_n$ is
 (1) -12 (2) 12 (3) -6 (4) 6
15. Consider the following statement and choose correct option
 (I) variance can not be negative
 (ii) S.D can not be negative
 (III) Median is influenced by extreme value in set of numbers.
 (1) TTT (2) FTT (3) FTF (4) TTF
16. The mean and variance of 7 observation are 7 and $\frac{100}{7}$. If 5 of the observation are 2, 4, 7, 11, 10, find the remaining 2 observations.
 (1) 3, 6 (2) 3, 12 (3) 4, 11 (4) 5, 10
17. The mean of distribution is 6, If coefficient of variation is 50%, then standard deviation of distribution is
 (1) 9 (2) 3 (3) 300 (4) 4
18. The mean deviation about median of variation 53, 54, 55,100 is
 (1) 11.5 (2) 12 (3) 12.5 (4) 13
19. The mean of two samples of sizes 20 and 10 were found to be 11, 8 respectively. Their variance were 4 and 34 respectively. Find the variance of combined sample of size 30.
 (1) 19 (2) 19.5 (3) 18.5 (4) 16
20. If standard deviation of 1, 2, 3, 4, 5 is $\sqrt{2}$ then which of the following is correct.
 (1) standard deviation of 1, 4, 9, 16, 25, is 2
 (2) standard deviation of 1001, 1002, 1003, 1004, 1005 is $\sqrt{2000}$
 (3) standard deviation of 1001, 1002, 1003, 1004, 1005 is $\sqrt{2}$
 (4) standard deviation of 1, 8, 27, 16, 25 is $\sqrt{2}$
21. The mean and variance of 100 numbers were calculated as 11 and 2 respectively. Later it was found that one of the number was misread 5 instead of 9. How does the variance change.
 (1) Variance doesn't change (2) Variance Increases

- (3) Variance decreases (4) Can't comment
22. The variance of first 5 even natural numbers is
(1) 6 (2) 7 (3) 8 (4) 9
23. If variance of x_1, x_2, x_3, x_4, x_5 is σ^2 , find variance of $3x_1+4, 3x_2+4, 3x_3+4, 3x_4+4, 3x_5+4$
(1) $4\sigma^2 + 3$ (2) $4\sigma^2 + 9$ (3) $9\sigma^2$ (4) $4\sigma^2 - 3$
24. Find the mean deviation about median of 34, 38, 42, 55, 63, 46, 54, 44, 70, 48
(1) 8.2 (2) 8.4 (3) 8.6 (4) 8.8
25. Variance of first n natural numbers.
(1) $\frac{n^2 - 1}{24}$ (2) $\frac{n^2 - 1}{12}$ (3) $\frac{n^2 - 1}{6}$ (4) $\frac{n^2 - 1}{3}$
26. In a batch of 20 students 8 have failed. The marks of the successful candidates are 23, 27, 29, 18, 17, 19, 21, 27, 20, 24, 26, 28 the median marks are
(1) 22 (2) 18 (3) 18.5 (4) can't determine
27. The coefficient of variation of two series are 60% and 70% if their standard deviation are 21 and 14, then find ratio of their AMs
(1) $\frac{6}{7}$ (2) $\frac{2}{3}$ (3) $\frac{4}{7}$ (4) $\frac{7}{4}$
28. The mean of 2 samples of sizes 50 & 40 were found to be 63 and 54. Their variance were 81 & 36. Find the variance of combined sample of size 90
(1) 9 (2) 81 (3) 3 (4) 243
29. The mean and median of some data is 14 and 12. Later it was discovered that every data element should be increased by 2 units then new mean and median will be
(1) 16, 12 (2) 16, 14 (3) 14, 12 (4) 10, 8
30. Rohan worked for a firm as given below
- | No. of weeks | Days each week he worked |
|--------------|--------------------------|
| 2 weeks | 1 day each week |
| 14 weeks | 2 day each week |
| 8 weeks | 5 day each week |
| 32 weeks | 7 day each week |
- What is the mean number of days rohan works per week
(1) 5 (2) 6 (3) 5.5 (4) 5.25

Practice Test (JEE-Main Pattern)

OBJECTIVE RESPONSE SHEET (ORS)

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

PART - II : PRACTICE QUESTIONS

1. If a variate X is expressed as a linear function of two variates U and V in the form $X = aU + bV$, then mean \bar{X} of X is
 (1) $a\bar{U} + b\bar{V}$ (2) $\bar{U} + \bar{V}$ (3) $a\bar{U} + a\bar{U}$ (4) None of these

2. The AM of n numbers of a series is \bar{X} . If the sum of first $(n - 1)$ terms is k , then the n th number is
 (1) $\bar{X} - k$ (2) $n\bar{X} - k$ (3) $\bar{X} - nk$ (4) $\frac{\bar{X}}{3}$

3. If \bar{X}_1 and \bar{X}_2 are the means of two distributions such that $\bar{X}_1 < \bar{X}_2$ and \bar{X} is the mean of the combined distribution, then
 (1) $\bar{X} < \bar{X}_1$ (2) $\bar{X} > \bar{X}_2$ (3) $\bar{X} = \frac{\bar{X}_1 + \bar{X}_2}{2}$ (4) $\bar{X}_1 < \bar{X} < \bar{X}_2$

4. Coefficient of variation of two distribution are 50% and 60% and their arithmetic means are 30 and 25 respectively. Difference of their standard deviations is
 (1) 0 (2) 1 (3) 1.5 (4) 2.5

APSP Answers

PART-I

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

PART- II

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|----|-----|----|-----|----|-----|----|-----|
| 1. | (1) | 2. | (2) | 3. | (4) | 4. | (1) |
|----|-----|----|-----|----|-----|----|-----|