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(6) _____ test is a non-parametric test.
   (i) t
   (ii) z
   (iii) Chi square

(b) Answer **any one** of the following :   2
   (1) Give two uses of t test.
   (2) What is degree of freedom and how is it tabulated for a chi square test.

(c) Attempt **any one** of the following :   4
   (1) Write the properties of ψ^2 test.
   (2) A group of students was being trained for a mental challenge by testing for their ability to remember certain items out of 30. A special session was then held to give them tips on improving their memory. The results are as follows :

Student's identity	A	B	C	D	E	F	G	H
No. of items remembered	19	14	13	16	19	18	16	17
No. of items remembered postsession	29	20	17	21	23	24	21	18

Test whether there is any significant impact of the special session.
$(t_{0.05, 7}) = 1.895$; $(t_{0.05, 8}) = 1.86$; $(t_{0.05, 16}) = 1.746$; $(t_{0.05, 14}) = 1.76$.

(d) Answer **any one** :   6
   (1) To compare the price of certain commodity in two towns, ten shops were selected at random in each town. The prices are as follows :

Town A	61	63	56	63	56	63	59	56	44	61
Town B	55	54	47	59	51	61	57	54	64	58

By applying suitable statistical method, test whether the average price can be said to be the same in the two towns.
$(t_{0.05,9}) = 2.26$; $(t_{0.05,8}) = 2.31$; $(t_{0.05,16}) = 2.12$; $(t_{0.05,18}) = 2.101$.

TURN OVER

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(2) The number of demand for a particular spare part in a shop was found to vary from day to day. In the sample study the following information was found.

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Number of parts demanded	124	125	110	120	126	115

The hypothesis that the number of parts demanded does not depend on the day of the week. $(\psi^2 \, 0.05, 6) = 8.558$; $(\psi^2 \, 0.05, 5) = 11.07$.

5. (a) Answer in brief **any one** of the following :
    (1) Write a brief note on Percentile.
    (2) Calculate the median for the number of flowers per plant from the given data.

Flowers	50-100	100-150	150-200	200-250	250-300
No.of plants	5	8	15	12	10

(b) In brief answer **any one** of the following :
    (1) What is the probability that 1994 would have had 53 Mondays?
    (2) Write a brief note on Phylogenetic tree.

(c) Answer in brief **any one** :
    (1) What is Critical value?
    (2) A random sample of 256 flower stems, showed an average length of 10cms. Can this be regarded as a sample from a large population with a mean of 10.2 and variance of 5 cms.

(d) Attempt any one of the following :
    (1) In a cross between black (dominant) and white coloured mice, in F2 the number of black and white mice obtained were 787 and 277. Test for Mendel's first law. $(\psi^2 \, 0.05, 1) = 3.84$; $(\psi^2 \, 0.05, 2) = 5.99$.
    (ii) Write a brief note on the alternate hypothesis.

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(e) State True or False (**any three**) :   3
   (1) The first step to hypothesis testing is to set the level of significance.
   (2) Mean is a measure of dispersion.
   (3) Mode = 3 Median - 2 Mean.
   (4) The shape of a t distribution curve varies with degrees of freedom.
   (5) Choice of one or two tailed test depends on null hypothesis.
   (6) Area of the rejection region depends on the size of α.

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