

Day & Date	Semester	Subject Name	Time	Code	Marks
Wednesday 25/04/2018	IV Fresh Repeater	Advanced Research Methodology and Statistical	03.00 PM To 06.00 PM	420003	100

**Instructions:** 1) Attempt any Five questions.  
2) Calculator is allowed during examination.

**Q.1** What is research hypothesis? Explain its sources. **20**

**Q.2** Explain the importance of research design and state its characteristics. **20**

**Q.3 Discuss:** **20**

- a) Pilot survey
- b) Sampling design

**Q.4** Find mean, median and mode for the following data: **20**

Daily wages (Rs)	No. of workers
100 – 120	12
120 – 140	18
140 – 160	25
160 – 180	27
180 – 200	20
200 – 220	15
220 – 240	10

**Q.5** Find mean, standard deviation and coefficient of variation (e. v) **20**

Marks	No. of Students
0 – 10	10
10 – 20	15
20 – 30	18
30 – 40	30
40 – 50	20
50 – 60	12

**Q.6 a)** The marks obtained by 500 students in the university are normally distributed with mean 45 and standard deviation 10. Find the number of students securing **10**

- 1) Less than 40
  - 2) More than 60
- [ for  $Z = 0.5$ ,  $P = 0.1915$   
 $Z = 1.5$ ,  $P = 0.4332$  ]

- b) A sample of 800 students have given their opinion about autonomous colleges. This is shown in the table below. Test using chi-square test that there is no significant difference between the views of under graduate and post graduate students at 5% level of significance. 10

Student	Favor	Not in favor
Under graduate	290	110
Post graduate	310	90

$$\left[ \frac{x^2}{0.05 (1)} = 3.84 \right]$$

**Q.7 Write a short notes: (Any Two)**

**20**

- a) Merits & demerits of median
- b) Simple random sampling
- c) Application of 't' test
- d) Null and Alternative hypothesis