

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**Subject code: 930001****Subject Name: Experimental Design & patents****Date: 03/06/2011****Time: 10.30 am – 01.30 pm****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain following terms with examples. **06**
 i) Factors ii) Levels iii) Effects
 (b) Explain the term “interaction” with example. Write advantages of factorial design. **05**
 (c) Calculate the main effect and interaction (based on three replication) by yate’s method of the data given below. **05**

Treatment combination	(1)	n	P	np	k	nk	pk	npk
Total yield	29	32	81	94	95	102	123	136

- Q.2** (a) Discuss in detail central composite designs. **06**
 (b) Write short note on “Fractional Factorial Design”. **05**
 (c) Suppose 15 tablets are available for the comparison of three assay (analysis test) methods, five tablets for each assay. Five replicate tablets are analyzed in each of three assay method groups, one assay per tablets, as shown in table. **05**

Method A	Method B	Method C
102	99	103
101	100	100
101	99	99
100	101	104
102	98	102

By applying one- way ANOVA, test whether the mean assay is the same for the three different groups. At the level of significance for (2,12) d.f. $F_t = 3.88$.

- Q.3** (a) Explain Yate’s method of calculating main effects and interaction in a 2^3 factorial experiment. **06**
 (b) Write short note on “Contour plots”. **05**
 (c) Write importance & applications of experimental design in Clinical trials. **05**
- Q.4** (a) What are the benefits of Intellectual Property System, especially the patent system? **06**
 (b) What are the different types of patents, which can be secured under the Indian Patents Act? Explain. **05**
 (c) What is meant by statement of claims? Write objectives of its. **05**

Q.5	(a)	When an invention get patent? List non-patentable inventions.	06
	(b)	What is the distinction between process and product protection?	05
	(c)	Differentiate between full model & reduced model as per experimental design.	05
Q. 6	(a)	What are the issues to be evaluated before entering into patent license agreements?	10
	(b)	Explain the following in brief : true & first inventor, Medicine or drug, copyright.	06
Q.7		What is infringement? What are the different types of infringement, discuss in brief.	16
