GUJARAT TECHNOLOGICAL UNIVERSITY
M.PHARM- SEM-III–EXAMINATION – MAY 2012

Subject code: 930001   **Date: 16/05/2012**

Subject Name: Experimental Design & Patents

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)	Discuss the various features and applications of central composite designs.	**06**
	(b)	Explain how the screening study is done with the help of Plackett and Burman design?	**05**
	(c)	Differentiate i) Main effect and interaction ii) linear model and Quadratic Model iii) Factors and levels.	**05**
Q.2	(a)	Define patents? What are the different types of patents? Explain the different patent specifications?	**06**
	(b)	What are the inventions which are not patentable under the patent act 1970?	**05**
	(c)	The following table shows the result of an experiment comparing percentage tablet dissolution after 15 min as performed by 3 laboratories (6 tablets per laboratory and 5 replication). Each laboratory determined the dissolution of tablets from the same batch of a standard product. Perform the one way ANOVA to test whether the mean dissolution percentage after 15 min is same for all the 3 different groups. The level of significance selected was 5% for df $(2,15)$, $F_{crit} = 3.682$.	**05**

Lab A	Lab B	Lab C
68	55	78
78	62	63
63	67	78
56	60	65
61	67	70
69	73	74

Q.3	(a)	Discuss the precautions to be taken while drafting "claims" in a patent application.	**06**
	(b)	What are the different Documents required for obtaining a patent.	**05**
	(c)	Short note on infringement of patents?	**05**
Q.4	(a)	Short note on: i) Resolution and Generators ii) Sequential steps to proceed with a Full factorial design.	**06**
	(b)	Discuss the importance and types of contour plots and Response surface plots.	**05**
	(c)	Explain the importance of experimental designs in clinical trials?	**05**

Q.5 (a) A 2^3 full factorial study was performed to improve the yield of a chemical process. The result of the study (2 replication) is given in the following table .Find out the main effects and interaction effects of the factors. Construct the polynomial equation and comment on the same. **06**

Treatment combination	(1)	a	b	ab	c	ac	bc	abc
% yield	90	74	81	83	77	81	88	73

(b) What are the different stages in an opposition proceeding under the patent act? **05**

(c) Short note on the patent related web sites giving free information about patents? **05**

Q. 6 (a) Write short note on: **06**
i) Prior Art ii) Register of patents iii) Non obviousness in patents

(b) Short note on the rules for maintaining the laboratory note book? **05**

(c) Discuss in detail Fractional Factorial Design **05**

Q.7 (a) Optimization by Grid search method. **06**

(b) What is PCT? What are the differences and advantages of PCT systems over traditional patent systems? **05**

(c) Advantages of TRIPS Provisions of the GATT Agreement. **05**

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