Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (INDUSTRIAL & PRODUCTION ENGINEERING)

END SEMESTER EXAMINATIONS, MAY 2016

SUBJECT: **PLANT ENGINEERING AND MAINTENANCE** (MME-350)

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions with appropriate answer
- Missing data may be suitably assumed.

1A.	Explain how plant engineering contributes to company profits.	**(03)**
1B.	Explain in brief safety standards for Exhaust system.	**(03)**
1C.	Name the principles of lubrication. Explain any one with neat sketch.	**(04)**
2A.	With neat sketch explain working of electrostatic precipitator.	**(04)**
2B.	What is Preventive Maintenance? And what are the objectives and functions of Preventive Maintenance? Explain.	**(03)**
2C.	What are the objectives of Maintenance? Explain.	**(03)**
3A.	State and explain Inverse square law of light illuminance to predict the illuminance at a specific point in a space.	**(04)**
3B.	Explain in brief Routine Maintenance with examples.	**(03)**
3C.	What are the causes of failure? Explain.	**(03)**
4A.	Write a note on PH corrections method of effluent treatment.	**(04)**
4B.	Give the classification of Dust collector.	**(03)**
4C.	Write a short note on Maintenance Job analysis.	**(03)**

5A. What are the needs of Industrial lighting? **(03)**

5B. A project consists of the following activities and time estimates. **(04)**

Activities	Optimistic Time(t_O)	Most likely Time(t_m)	Pessimistic Time(t_P
1 - 2	**03**	**06**	**15**
1 - 6	**02**	**05**	**14**
2 - 3	**06**	**12**	**30**
2 - 4	**02**	**05**	**08**
3 - 5	**05**	**11**	**17**
4 - 5	**03**	**06**	**15**
6 - 7	**03**	**09**	**27**
5 - 8	**01**	**4**	**07**
7 - 8	**04**	**19**	**28**

Draw the network. And Find the critical path.

5C. Explain how you control noise at source receiver and along the path. **(03)**

6A. What do you mean by inorganic and organic pollutants? **(03)**

6B. The various transition probabilities for the good and failed states of equipment along with the cost data are as given in the table below. Determine optimum overhaul/repair/replacernent policy equipment for the two periods.

Condition at the start of the period	**Decision**	**Condition at the End of the period**	
		GOOD	FAILED
GOOD	OVERHAUL	**P_{GG}=0.65**	**P_{GF}=0.35**
	REPLACE	**P_{GG}=0.8**	**P_{GF}=0.2**
FAILED	REPAIR	**P_{FG}=0.55**	**P_{FF}=0.45**
	REPLACE	**P_{FG}=0.75**	**P_{FF}=0.25**
	COST PER PERIOD IN Rs		
		GOOD	FAILED
GOOD	OVERHAUL	**C_{GG}=Rs 150**	**C_{GF}= Rs 950**
	REPLACE	**C_{GG}= Rs 300**	**C_{FG}= Rs 1100**
FAILED	REPAIR	**C_{FG}= Rs 200**	**C_{FF}= Rs 1000**
	REPLACE	**C_{FG}= Rs 300**	**C_{FF}= Rs 1100**

(04)

6C. Explain the with sketch mechanical dry type dust collector. **(03)**