



Reg. No. : .....

Name : .....

**Eighth Semester B.Tech. Degree Examination, April 2016  
(2008 Scheme)**

**08.802 : INDUSTRIAL ENGINEERING (MPU)**

Time : 3 Hours

Max. Marks : 100

**Instructions :** *Answer all questions in Part – A and any one full question from each Module in Part – B. Any missing data shall be assumed. All assumptions must be clearly stated.*

**PART – A**

1. How does industrial engineering help to increase the productivity of an organization ?
2. What is the need for organizations to design and develop new products ?
3. How the plant layouts are related to type of production ?
4. What are therbligs ? When it is used ?
5. What are the factors that influence payment of wages to the employees ?
6. What are the steps taken in an industry for labour welfare ?
7. Enlist various material handling devices.
8. What is Gantt chart ? How it is constructed ?
9. What is producer's and consumer's risk ?
10. What are the benefits of ISO registration ? (4×10=40 Marks)

**PART – B**

**Module – I**

11. a) Explain the economic and non-economic factors influencing manufacturing or purchase decision. 10  
b) "Value engineering prevents unnecessary cost build up into the product". Explain. 10
- OR
12. a) Distinguish between preventive maintenance and breakdown maintenance. 8



- b) The cost of a machine is Rs. 50,000. The life of the machine is 8 years and the various costs associated with the machine are as follows :

12

Year	1	2	3	4	5	6	7	8
Maintenance and Running cost per year	15000	16000	18000	21000	25000	29000	34000	40000
Scrap value of the machine at the end of year	35000	25000	17000	12000	10000	5000	4000	4000

Suggest the optimum policy.

### Module – II

13. a) What are the principles of motion economy ? 10
- b) An operator was kept under observation for 10 days. He was found working on 400 occasions and abstaining including idle 100 times. He produced 200 jobs during these days. The observation per day was for 5 hours only and the total number of observations was 500. Take 120 as performance rating for operator and 20% as allowance. Calculate the standard time. 10

OR

14. a) Explain the quantitative and qualitative techniques of job evaluation. 10
- b) Explain the different methods employed for settling industrial disputes. 10

### Module – III

15. a) What are the characteristics of batch production ? How does it differ from mass production ? 10
- b) A product is sold at the rate of 500 pieces per day and manufactured at the rate of 2500 pieces per day. Setup cost of the machines is Rs. 3,000 and storage costs are found to be 0.0045 Rs./unit/day. Labour, material and overhead charges are Rs. 95, Rs. 65 and Rs. 120 respectively. If the interest charges are 16%, find the minimum cost batch size and cost of production run. 10

OR

16. a) Define reliability. Explain the shape of failure rate of a product with time. 10
- b) Explain a typical OC curve for a control chart. What is the effect of sample size on control limits ? 10