(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 4086　Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

B.Tech.

(SEM. V) ODD SEMESTER THEORY EXAMINATION 2010-11

RELIABILITY AND MAINTENANCE ENGINEERING

Time : 3 Hours　　　　　　　　　　　　　　*Total Marks : 100*

Note : Attempt **all** questions.

1.　Attempt any **two** of the following :　　　　**(10×2=20)**

　　(a)　Compare Breakdown and Preventive maintenance.

　　(b)　Describe in brief the "Economic Aspect of Maintenance". How you can select an optimum maintenance programme ?

　　(c)　What do you understand by Inspection and Card history system ? How are they helpful in maintenance planning ?

2.　Attempt any **four** of the following:　　　　**(5×4=20)**

　　(a)　Explain in detail Predictive Maintenance.

　　(b)　Describe in brief the use of Computers in Maintenance management.

　　(c)　Briefly discuss the criterion for selection of lubricants. List various types of lubricants.

(d) What do you understand by Non Destructive Testing ? Explain Ultrasonic testing.

(e) What do you understand by 'Oil Analysis' ? What is the information obtained from it ? Explain.

(f) Explain Radiographic Testing. How is it done ? What are its advantages ?

3. Attempt any **two** of the following : $(10 \times 2 = 20)$

(a) Explain the causes and remedies of the following problems in bearings :

   (i) Overheating

   (ii) Noise

   (iii) Vibration.

(b) Explain the following in reference to Belt Drives :

   (i) Tension in belts

   (ii) Selection of belts

   (iii) Slip and Creep

   (iv) Installation of belt drive.

(c) Write a detailed note on types and uses of couplings.

Attempt any **two** of the following : $(10 \times 2 = 20)$

(a) What do you understand by fluid power systems ? What are their advantages and disadvantages over other power systems ?

(b) Write a detail note on types of compressors and their applications. What are the general maintenance problems which occur in compressor operation ?

(c) Write a detail note on Control Valves, their applications and Maintenance.

5. Attempt any **four** of the following :   **(5×4=20)**

(a) Define the following :

    (i)   Mean Failure rate

    (ii)   System Reliability.

(b) Write a note on Pareto analysis.

(c) Explain the term 'Availiability'. How effective maintenance can improve the reliability of an equipment ? Explain.

(d) Explain in brief Life Testing and its objectives.

(e) Explain the term Redundancy and its types in reference to reliability.

(f) What are the advantages of failure data analysis ? What are its disadvantages ?