THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF ENGINEERING TECHNOLOGY
DIPLOMA IN TECHNOLOGY LEVEL 4
FINAL EXAMINATION – 2011

MEX4234 – PLANT MAINTENANCE & WORK SERVICES

DATE : 12TH MARCH 2012
TIME : 1400 HRS. – 1700 HRS.
DURATION : THREE (03) HOURS

ANSWER ANY FIVE (05) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS

QUESTION 01

(a) The "maintenance function" should be given a prominent place in any production organization. State the relevance of this statement using the organization chart with indication of hierarchical positions of the maintenance structure of a production organization consisting of a large number of production machinery and other service facilities.

(b) "A large organization spread over a vast geographical area will need decentralization of maintenance by having small maintenance centres in various locations".

Briefly explain the advantages and disadvantages of decentralization of maintenance.

QUESTION 02

(a) "Approach to maintenance can be in different ways, namely, planned maintenance and unplanned maintenance." Explain.

(b) If you are assigned the responsibility of preparing a maintenance programme for a newly established production line in a factory, what information would you need for preparing such a programme. Explain.

QUESTION 03

(a) Distinguish "product layout" from "process layout". Is there any other type of layout? Explain.

(b) What are the facilities provided in a plant and why planning of such facilities is important?

QUESTION 04

(a) "From the design point of view, a machine foundation should satisfy number of requirements". Briefly explain five such requirements.

(b) "There are two types of vibration isolation in foundations". What are they? Explain with the aid of schematic diagrams where appropriate.

QUESTION 05

(a) Explain boundary lubrication and hydrodynamic lubrication with the aid of a graph of μ versus $\frac{\eta N}{P}$.

(b) Name and discuss three important properties of a lubricant.

QUESTION 06

(a) 'Lubricant starvation' is one of the causes for overheating a journal bearing. What are the other possible causes?

(b) Briefly explain the properties of materials used for sliding bearings.

QUESTION 07

(a) With typical examples, describe the welding processes commonly used for repair and maintenance of machinery and equipment.

(b) How would you assess the quality of a weld with the facilities available in an ordinary workshop?

QUESTION 08

(a) Briefly explain the different processes used for the removal of air pollutants.

(b) Briefly explain how river water is purified for drinking purposes.

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