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Total No. of Questions : 08] [Total No. of Pages : 02

Paper ID [PE523]

MAY 2008

(Please fill this Paper ID in OMR Sheet)

M.Tech. (Sem. - 3rd)

METHODS ENGINEERING AND ERGONOMICS (PE - 523)

Time : 03 Hours Maximum Marks : 100

Instruction to Candidates:

1) Attempt any **FIVE** questions.
2) **All** questions carry equal marks.

Q1) (a) How use of work study leads to higher productivity in a manufacturing unit? Explain briefly.

(b) State the advantages, disadvantages and practical applications of time standards established by 'Work Sampling Method'.

Q2) (a) What do you understand by standard data? Give various steps for developing standard data and give its uses.

(b) Discuss various types of wage incentives. What type of incentive would you recommend for white colored people?

Q3) (a) Define ergonomics. What role does it play in job design? Illustrate with examples.

(b) What is man-machine system? Discuss its working. Give its general characteristics and features.

Q4) (a) Discuss the criterion of selecting the seat height of operators with respect to work surface height.

(b) Discuss various types of displays and the principles used in the design of visual displays?

Q5) (a) Based on your knowledge of motion and time study, recommend remedial measures for the following :

(i) An out of balance assembly line.

(ii) Work flow through the shops suffers from bottlenecks.

(b) How you will measure the following :

(i) Physical work load.

(ii) Mental work load.

Q6) (a) Discuss the heat exchange process of human body with the environment? What remedial measures you will suggest to provide the thermal comfort in the working areas?

(b) How do the high heat and high cold affect the human performance?

Q7) (a) How does the human body respond to 'low frequency vibrations' and 'high frequency vibrations'? Discuss the effects of these vibrations on human performances.

(b) Briefly discuss the methods of reducing vibrations.

Q8) Write short notes on the following :

(a) Methods Time Measurement (MTM).

(b) Physiological effects of noise.

(c) SIMO charts.