Printed Pages : 1

EAU-023/NAU-013

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

PAPER ID : Roll No. | | | | | | | | | | |

B.TECH.

Theory Examination (Semester-VI) 2015-16

PRODUCT DESIGN AND ASSEMBLY AUTOMATION

Time : 3 Hours *Max. Marks : 100*

SECTION-A

1. Attempt all parts. **(2×10=20)**

a) What are the indexing machines?
b) What is effect of part symmetry on handling time?
c) What are free transfer machines?
d) Explain the load sensitivity.
e) What is data representation?
f) What is mechanics of vibratory conveying?
g) Explain the intermittent transfer.
h) What is effect of weight on handling lime?
i) Why avoiding jams during assembly.
j) What is the performance and economics of assembly system?

SECTION-B

2. Attempt any five parts of the following. **(10×5=50)**

a) Write short notes on magazines used for delivering parts to automatic assembly machine.
b) Write short notes on magazines used for delivering parts to automatic assemblymachine.
c) Explain the applications of the DFA methodology and general design guidelines in assembly.
d) Explain disadvantages of in-line transfer mechanisms and applications of intermittent transfer system?
e) Explain the effect of part symmetry, part thickness, size and weight on handling time in detail?
f) Explain the changes in manufacturing that gave rise to the development of automation process.
g) Explain the difference between manual assembly and automated assembly transfer system.
h) Discuss the effect of symmetry and chamfer designs on insertion operation.

SECTION-C

Attempt any two parts of the following. **(15×2=30)**

1. Sketch and explain the construction and working of reciprocating tube feeder used for disc type of components.
2. Describe the construction and working of Reciprocating tube hopper feeder and derive the condition for avoiding jamming of parts in reciprocating feeder.
3. Explain the effect of parts quality on:
   i. Production time.
   ii. Cost of assembly.