

B.Tech. SEM -VII Production 2014 Course (CBCS) : WINTER - 2018
SUBJECT : MECHATRONICS & MANUFACTURING AUTOMATION

Day : Wednesday
 Date : 28/11/2018

W-2018-2580

Time : 02.30 PM TO 05.30 PM
 Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable calculator is allowed.
- 4) Neat diagram must be drawn wherever necessary.
- 5) Assume suitable data if necessary.

Q.1 a) Explain the working principle of LVDT. (05)
 b) Describe mechatronics design process. (05)

OR

a) Write short note on optical encoder. (05)
 b) Justify the camera system in the best example of mechatronic system. (05)

Q.2 Describe the time constant of a first order system. (10)

OR

a) Explain zero order system of system response. (05)
 b) Write down various steps involved in determining the system response. (05)

Q.3 a) Explain instrumentation amplifier using diagram. (05)
 b) Describe operation of multiplexers. (05)

OR

a) Explain with figure quantizing theory in data acquisition. (05)
 b) What is pulse modulation? (05)

Q.4 Write short note on: (10)

- a) Special purpose machine
- b) High speed machine

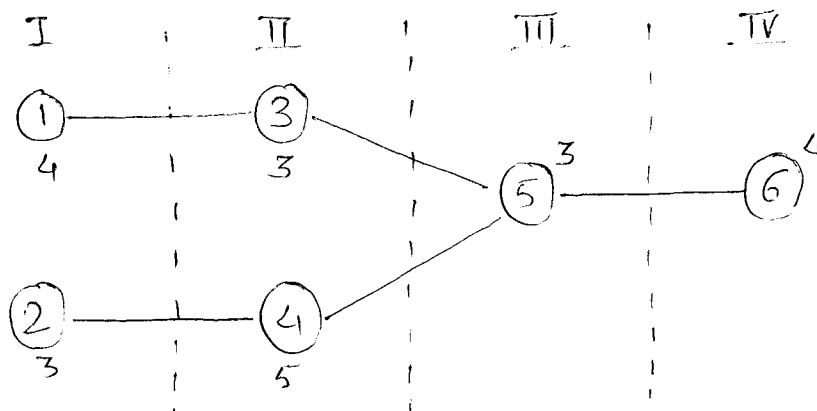
OR

a) What is safety monitoring in an automated system? (05)
 b) Explain different levels of automation in manufacturing. (05)

Q.5 a) Explain cellular manufacturing with its merits and demerits. (05)
 b) Describe flexible manufacturing system (FMS). Write down its advantages and limitation. (05)

OR

The procedure diagram is as shown for six work stations. Assign the work elements to work stations. Calculate line efficiency and balance delay. By using Heuristic method. Assume cycle time 8 min. (10)



P.T.O.

- Q.6 a) Explain PID control with diagram and state its characteristics (05)
b) Describe programmable logic controller (PLC) (05)
- OR**
- a) Explain 8085 microprocessor with neat sketch. (05)
b) Write a note on ladder diagram. (05)

* * *