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SEAT No. _____

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SARDAR PATEL UNIVERSITY

M.Sc. (Instrumentation & Control) Semester – II Examination

Subject: COMPUTER AIDED PROCESS CONTROL (PS02CINC23)

Date: 23/03/2019

Time: 10:00 A.M to 1:00 P.M

Total Mark: 70

Saturday

Q.1 Choose a correct option for the questions given below: (8)

- 1) The difference between the low and high values of the range, that is measured is called
(a) Range (b) Span (c) Zero (d) Phase difference
- 2) Ratio control system is a special type of _____.
(a) Feed forward (b) Feedback (c) Selective (d) Override
- 3) The models in which the system properties does not change with position is.
(a) Lumped system (b) Distributed system (c) Linear system (d) Nonlinear system
- 4) The system is said to be under specified if
(a) $NE > NV$ (b) $NE < NV$ (c) $NE = NV$ (d) None
- 5) Which type of batch process produces the same product in each batch and same operations are performed in each batch using the same amount of raw materials?
(a) Single- product (b) Multi-grade (c) Multi-product (d) series structure
- 6) _____ converts the higher level program like C, FORTRAN, BASIC etc. into machine level.
(a) Assembler (b) Compiler (c) Editors (d) a and b both
- 7) SQA stands for _____.
(a) Software Quality Assessment (c) Software Quality Assignment
(b) Security Quality Assessment (d) Security Quality Assignment
- 8) _____ is a field of computer science concerned with the development and deployment of machine that mimic human behavior.
(a) Artificial intelligence (b) Neural network (c) fuzzy logic (d) b and c both

Q.2 Answer the following (attempt any 7): (14)

- 1) What do you mean by time –driven sequential control system?
- 2) Explain degree of freedom of process?
- 3) Enlist types of process model?
- 4) What is the role of digital computers in industrial process control?
- 5) Enlist benefits of process control systems.
- 6) Differentiate between Batch process and Continuous process.
- 7) Explain Proportional control action with proportional band?
- 8) Explain build & fix type process model.
- 9) Draw the functional block diagram of Water- fall process model.

①

(P.T.O.)

- Q.3 (a) Explain Feed forward control system with its advantage and disadvantage. (6)
(b) What is Actuator Based control system? Explain Electrical control system with example. (6)

OR

- (b) What is cascade control system? Illustrate with neat sketch a cascade control system for heat exchanger temperature control. (6)
- Q.4 (a) Enlist the objectives of process control and explain them? What are the important question should be answered while developing process model. (6)
(b) Enlist types of process models. Explain Fundamental and Empirical models in details. (6)

OR

- (b) What are the major steps of modeling procedure? Explain Goal definition in detail. (6)
- Q.5 (a) What is Real Time Operating system? Explain its structure with suitable block diagram? (6)
(b) Explain Hierarchy of a computer system, explain each level. (6)

OR

- (b) Explain with structure single-task and multi-tasking operating system. (6)
- Q.6 (a) Describe in detail software life cycle. (6)
(b) Give note on: Incremental model and Spiral model. (6)

OR

- (b) What an Expert systems? What is the structure of it? (6)

