Total No. of Questions : 4]

SEAT No. :

P904

[Total No. of Pages : 2

[5315]-601

T.Y. B.Sc. (Semester IV)
PHYSICS (Paper - V)
PH - 345 (B) : Advanced Electronics
(2008 Pattern)

Time : 2 Hours]

[Max. Marks : 40

Instructions to the candidates:-
  1) *All questions are compulsory.*
  2) *Figures to the right indicate full marks.*
  3) *Draw neat diagrams wherever necessary.*
  4) *Use of log tables and calculator is allowed.*

Q1) Attempt <u>all</u> of the following (<u>one</u> mark each):

  a) Which material is used to construct NTC thermistors?

  b) Define the term : linearization of signals.

  c) Draw the circuit symbol for a photo diode.

  d) How the dosage of alum is decided in water purification process?

  e) Define the term : scan time for a PLC.

  f) State the principle of photo diode detector.

  g) What are the types of signal conditioning used in process control?

  h) State the working principle of narrow band pyrometer.

  i) What is discrete state process control?

  j) What is turbidity?

Q2) Attempt <u>any two</u> (five marks each)

  a) Explain the construction and working of photovoltaic detector with suitable diagram.

P.T.O.

b) A metal wire shows following variation of resistance with temperature. Find the linear approximation for the resistance.

T(°C)	50	55	60	65	70	75	80
R(Ω)	150.0	162.5	170.1	175.0	180.2	184.2	190.0

c) Draw a neat, labelled diagram for process control system.

Q3) Attempt <u>any two</u> (<u>five</u> marks <u>each</u>):

a) Describe how analog control system can be used for continuous variation of temperature in an oven.

b) State the main objectives of a control system. Discuss the terms - steady state regulation and transient regulation.

c) What is chemical dosage in a water treatment plant? Discuss it with suitable diagram.

Q4) a) Attempt <u>any one</u> (Eight marks):

i) Discuss the principle, construction and working of a broad band pyrometer using a neat diagram.

ii) State the different types of motion; discuss the principle, construction and working of accelerometers.

b) Attempt <u>any one</u> (Two marks):

i) Discuss the principle of a bimetal strip temperature sensor in brief.

ii) A RTD dissipates 20 mW/°C. If the temperature rise due to self heating is 0.55°C, determine the power dissipated in the RTD.

❀ ❀ ❀

[5315]-601   2