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SARDAR PATEL UNIVERSITY

B.Sc. INSTRUMENTATION (VOC.)
November 2016 (SEM – I)
INSTRUMENTATION SYSTEM - 1
SUB CODE: US01CINV02

DATE: 21TH Nov. 2016 TIME: 10:00 AM TO 12:00 PM
DAY: Monday TOTAL MARKS: 70

Q. 1 **Choose the correct answer.** [10]

(1) _____ is not a type of error in instrumentation measurement system.
(A) Systematic (C) Accuracy
(B) Random (D) Gross

(2) In a statistical analysis of observation D stand for _____ .
(A) Arithmetic mean (C) Average deviation
(B) Standard deviation (D) None of above

(3) _____ is unit for measurement of light.
(A) Candela (C) Kelvin
(B) Meter (D) None of above

(4) The ratio of output signal of instrument to a change of an input signal is _____.
(A) Accuracy (C) Sensitivity
(B) Error (D) None of above

(5) In coulomb's law equation K stand for _____.
(A) Proportionality constant (C) Force
(B) Inversely constant (D) Magnitude

(6) 1 yard = _____ foot
(A) 0.3 (C) 03
(B) 30 (D) 300

(7) _____ is type of instruments.
(A) Deflection and null (C) Arithmetic
(B) Rectification (D) All of above

(8) 1 _____ = 0.4535 kg.
(A) Pound (C) Milligram
(B) Gram (D) None of above

(9) Output of transducer become input of _____ system.
(A) Signal conditioning (C) External power element system
(B) output (D) None of above

(10) _____ Error is referring short coming of instrument such as defective or worn parts.
(A) Gross (C) random
(B) systematic (D) None of above

(P.T.O.)

Q.2 Answer the following.(attempt any ten) [20]

(1) Define sensitivity and resolution.
(2) State standard definition of time (second) and length (meter).
(3) Define random error.
(4) Define fundamental and derived unit.
(5) Define accuracy and precision.
(6) State formula for average deviation.
(7) Enlist just classification of instruments
(8) State different standard of measurement.
(9) Explain importunes of conversation of units.
(10) Enlist classification of standards..
(11) What is important of signal conditioning element?
(12) What is auxiliary element? Brief in short.

Q.3 Explain manually operated and automatic operated type instrument.. [10]

OR

Q.3 Explain null and deflection type of instrument. [10]

Q.4 Illustrate different methods of statistical analysis of observation with suitable example. [10]

OR

Q.4 How error effect in measurements? Discuss systematic error and random error in detail. [10]

Q.5 (A) List different system of units and explain any on system of unit in detail. [05]
(B) The floor area of building is 4000 m^2 calculate the floor area in $inch^2$ and cm^2. [05]

OR

Q. 5 Derived an equation for electrical and magnetic unit. [10]

Q. 6 Explain in detail standard for, mass, length, and volume in detail. [10]

OR

Q. 6 Describe the standard for time and frequency in detail. [10]

Best of Luck