

B.E. (Instrumentation Engineering) Model Curriculum Semester-VI
IN601M3 - Professional Elective-II : Smart Sensors

P. Pages : 2

Time : Three Hours



GUG/W/24/14028

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What are different out puts from frequency time domain signals. 8
- b) Illustrate the following terms with examples. 8
- i) Integrated Sensors
 - ii) Smart sensor
 - iii) Quasi digital sensors

OR

2. a) How MEMS are suitable for smart sensors, illustrate with diagram. 8
- b) What are frequency sensors and list the advantages of frequency sensors with suitable example. 8
3. a) What is quantization error? How it can be minimized. 8
- b) What is data Transmission? And explain it types. 8

OR

4. a) Explain the working of voltage to frequency converter with suitable diagram. 8
- b) How to measure frequency by standard direct counting Method. 8
5. a) Describe demerit of ratio metric counting method. 8
- b) Describe components of static and dynamic errors. 8

OR

6. a) Explain reciprocal counting method. 8
- b) Explain DMA transfer method in detail. 8

7. a) What is SPI protocol? Explain in detail with advantages and disadvantages. 8
- b) What is Hall Effect? Describe the hall effect sensor and its functions. 8

OR

8. a) Describe antilock breaking system with example. 8
- b) What is I2C protocol? Explain in detail with advantages and disadvantages. 8
9. a) Explain rotation speed sensor with example. 8
- b) Explain the working of humidity sensor. 8

OR

10. a) Explain the working of DAQ system for temperature sensor. 8
- b) What is the different technology used in MEMS. Explain one of them technology. 8
