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## Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Nanodevices and Applications

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Discuss about scintillation detector and gas filled detectors. (10 Marks)  
b. Discuss about pressure sensors, types of pressure measurements and its applications. (10 Marks)

OR

- 2 a. Explain in details about optical sensors, and light sources. (12 Marks)  
b. Discuss about the principle, structure and applications of magnetic sensors. (08 Marks)

### Module-2

- 3 a. Explain about nano structured gas sensors and its performance factors. (10 Marks)  
b. Discuss about nano mechanical sensors. (06 Marks)  
c. Write a short note on Plasmon Resonance sensors with nano particles. (04 Marks)

OR

- 4 a. Discuss about one-dimensional gas sensor and its classification based on the arrangement of nano-structures. (12 Marks)  
b. Explain about nano-optical sensors. (08 Marks)

### Module-3

- 5 a. Brief about preparation of polymeric nanofibre. (10 Marks)  
b. Discuss about nano imprint lithography and mention its advantages. (10 Marks)

OR

- 6 a. Write a detailed note on NEMS fabrication. (15 Marks)  
b. Explain stencil lithography. (05 Marks)

### Module-4

- 7 a. Discuss about Photo induced electron transport in DNA. (10 Marks)  
b. Explain about DNA-Gold nano conjugates. (10 Marks)

OR

- 8 a. Write about electronic devices based on DNA. (10 Marks)  
b. Describe the electrical manipulation of DNA on metal surface. (10 Marks)

### Module-5

- 9 a. Discuss the applications of biosensor based instruments to the bioprocess industry. (10 Marks)  
b. Explain about non-invasive biosensors in clinical analysis. (10 Marks)

OR

- 10 a. Briefly explain about biosensors for environmental applications. (10 Marks)  
b. Explain about Bio-reactor. (05 Marks)  
c. Discuss about Biocore. (05 Marks)

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