BE, sem-VIII, SH2018 04/12/18
(Electronics)

Q. P. Code : 36790

(3 Hours) (Total Marks: 80)

Please check whether you have the right question paper.

N.B.: 1) Question No.1 is compulsory.
2) Answer any Three out of remaining five questions
3) Draw the neat diagrams wherever necessary.

Q1.

A] What is MEMS? Give two examples of MEMS devices which are characterized by sensors and actuators. 5

B] What are polymers? Discuss its role in MEMS fabrication. 5

C] Explain the steps in standard RCA cycle, during wafer cleaning. 5

D] Explain packaging challenges in MEMS devices. 5

Q2.

A] What are different silicon compounds. Explain their characteristics and uses in MEMS device fabrication. 10

B] State various physical vapor deposition techniques. Explain in brief any one technique of PVD in MEMS fabrication. 10

Q3.

A] Explain the process of photolithography in detail. 10

B] Distinguish between Wet and Dry etching process with suitable applications. 10

Q4.

A] Describe the representative process flow for fabricating the cantilever structure. 10

B] Define reliability in MEMS devices. Explain it using bath-tub-curve. 10

Q5.

A] Explain in detail, fabrication steps for MEMS microheater. 10

B] Differentiate between surface and bulk micromachining with suitable examples. 10

Q6. Write short note on: 20

A] MEMS sensors in IoT applications.

B] Selection of MEMS material based on applications.

C] Wafer bonding techniques.

D] MEMS device characteristics.
