1038

Code : 15MC54A

Register Number | | | | | | | | | | |

V Semester Diploma Examination, Nov./Dec.-2018

MICRO ELECTRO MECHANICAL SYSTEMS

Time : 3 Hours] **[Max. Marks : 100**

Note : Answer any **six** questions from Part – A and **seven** full questions from Part – B.

PART – A

Answer any **six** questions. **5 × 6 = 30**

1. Explain MEMS. **5**

2. Explain the advantages and typical application portable blood analyser. **5**

3. Explain substrates and wafers in micro system. **5**

4. Explain scaling in Geometry. **5**

5. Explain silicon wafer preparation. **5**

6. Explain design constrains for micro system. **5**

7. Explain die-packaging. **5**

8. Explain thin film deposition by thermal evaporation. **5**

9. Explain scaling in Heat Transfer. **5**

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PART – B

Answer any **seven** full questions. **10 × 7 = 70**

10. (a) Explain system-on-a-chip with graphical representation. 5

(b) Explain typical smart system with block diagram. 5

11. Explain the principle of operation of silicon capacitive accelerometer. 10

12. Explain the principles of operation of piezoelectric Inject print head. 10

13. Explain briefly three silicon compounds often used in micro systems. 10

14. (a) Explain Quartz with its application and advantages. 5

(b) Explain comparison of Macro and Micro worlds with pictorial depiction. 5

15. (a) Explain scaling in Electricity. 5

(b) Explain principal design requirements in packaging design. 5

16. Explain with sketches major steps in the LIGA process. 10

17. Explain thin film deposition by Thermal CVD process. 10

18. Explain mechanical design parameters with respect to thermo mechanical loading. 10

19. (a) Explain device level packaging. 5

(b) Explain system level packaging. 5