Reg. No.										

MANIPAL UNIVERSITY
SCHOOL OF INFORMATION SCIENCES

SECOND SEMESTER MASTER OF ENGINEERING – **ME (COMPUTING TECHNOLOGIES & VIRTUALIZATION** / EMBEDDED & WIRELESS TECHNOLOGY) DEGREE EXAMINATION – ARPIL / MAY 2016

SUBJECT: **VIR 616** / EWT 616.9 (E2) - HETEROGENEOUS COMPUTING

4/5/2016

Time: 10.00 – 13.00 Hrs. Max. Marks: 100

1. What is Heterogeneous Computing? Why is Heterogeneous computing needed? (10 marks)
2. What is a Coprocessor? (10 marks)
3. What is a Shader? Discuss the types of shaders available (10 marks)
4. Discuss the CUDA Programming Model? Highlight the scalability feature (10 marks)
5. What is thread indexing and block indexing in CUDA? (10 marks)
6. WAP using CUDA C to add two matrices of size 100 X 100 (10 marks)
7. What is OpenCL Standard? Discuss OpenCL specification? (10 marks)
8. What is the need for "flush" and "finish" commands in OpenCL? (5X2 = 10 marks)
9. Why performance cannot be increased indefinitely by increasing the frequency? Justify (10 marks)
10. WAP using OpenCL to add two matrices of size 100 X 100 (10 marks)

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