**D. Y. Patil College of Engineering, Akurdi, Pune 411044**
**Department of Computer Engineering**

---

**Unit Test III** Date: 14/10/2020

Class : BE Computer Div: A Subject : High Performance Computing
Academic Year : 2020-21 Sem : I Exam Date: 14/10/2020

| *Q. No.* | *Question Description* | *Options 28* | *Correct Answer* | *Marks* | *CO* | *PO* | *PSO* | *BTL* |
|---|---|---|---|---|---|---|---|---|
| 1 | In all-to-one reduction, data items must be combined piece-wise and the result made available at a _____ processor. | A. First<br>B. Last<br>C. Target<br>D. N-1 | **C** | **2** | **3** | **1** | **3** | **4** |
| 2 | Analyze the Cost of Scatter and Gather . | A. T=tw log p + ts m (p-1)<br>B. T=ts log p + tw m (p-1)<br>C. T=ts log p - tw m (p-1)<br>D. T=tw log p - ts m (p-1) | **B** | **2** | **3** | **4** | **3** | **4** |
| 3 | All-to-all personalized communication is also known as _____. | A. partial exchange<br>B. total exchange<br>C. both of the above<br>D. none of the above | **B** | **2** | **3** | **1** | **3** | **1** |
| 4 | All-to-all personalized communication is performed independently in each row with clustered messages of size _____ on a mesh. | A. m<br>B. p<br>C. m√p<br>D. p√m | **C** | **2** | **3** | **1** | **3** | **4** |
| 5 | In All-to-All Personalized Communication on a Ring, the size of the message reduces by _____ at each step | A. m<br>B. p<br>C. m-1<br>D. p-1 | **A** | **2** | **3** | **1** | **3** | **1** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6 | All-to-All Broadcast and Reduction algorithm on a Ring terminates in _____steps. | A. p<br>B. p+1<br>C. p-1<br>D. p*p | **C** | **2** | **3** | **1** | **3** | **1** |
| 7 | In All-to-all Broadcast on a Mesh, operation performs in which sequence? | A. rowwise, rowwise<br>B. rowwise, columnwise<br>C. columnwise, rowwise<br>D. columnwise, columnwise | **B** | **2** | **3** | **1** | **3** | **3** |
| 8 | In the _____ operation, a single node sends a unique message of size m to every other node. | A. Scatter<br>B. gather | **A** | **2** | **3** | **3** | **3** | **1** |
| 9 | In the _____ operation, a single node collects a unique message from each node. | A. Scatter<br>B. gather | **B** | **2** | **3** | **3** | **3** | **1** |
| 10 | Messages get smaller in _____and stay constant in _____. | A. broadcast, gather<br>B. gather, broadcast<br>C. scatter , broadcast<br>D. scatter, gather | **C** | **2** | **3** | **1** | **3** | **4** |
| 11 | The time taken by all-to-all broadcast on a ring is _____. | A. $T= 2t_s(\sqrt{p} - 1) + t_w m(p-1)$<br>B. $T= (t_s + t_w m)(p-1)$<br>C. $T= t_s \log_p + t_w m(p-1)$<br>D. $T= 2t_s(\sqrt{p} - 1) - t_w m(p-1)$ | **B** | **2** | **3** | **4** | **3** | **4** |
| 12 | The time taken by all-to-all broadcast on a mesh is _____. | A. $T= 2t_s(\sqrt{p} - 1) + t_w m(p-1)$<br>B. $T= (t_s + t_w m)(p-1)$<br>C. $T= t_s \log_p + t_w m(p-1)$<br>D. $T= 2t_s(\sqrt{p} - 1) - t_w m(p-1)$ | **A** | **2** | **3** | **4** | **3** | **4** |
| 13 | The time taken by all-to-all broadcast on a hypercube is _____. | A. $T= 2t_s(\sqrt{p} - 1) + t_w m(p-1)$<br>B. $T= (t_s + t_w m)(p-1)$<br>C. $T= t_s \log_p + t_w m(p-1)$<br>D. $T= 2t_s(\sqrt{p} - 1) - t_w m(p-1)$ | **C** | **2** | **3** | **4** | **3** | **4** |
| 14 | _____ is a special permutation in which | A. Left shift<br>B. Right shift | **C** | **2** | **3** | **1** | **3** | **1** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | node *i* sends a data packet to node *(i + q)* mod *p* in a *p*-node ensemble *(0 ≤ q ≤ p)*. | C. Circular shift<br>D. Linear shift | | | | | | |
| 15 | The prefix-sum operation can be implemented using the _____kernel | A. all-to-all reduction<br>B. all-to-all broadcast<br>C. one-to-all broadcast<br>D. all-to-one broadcast | **B** | **2** | **3** | **1** | **3** | **1** |

(Mrs. Dhanashree Phalke) Subject Teacher

(Mrs. Vaishali Kolhe) Academic Coordintor

( Dr. Kailash Shaw) Dept. NBA Coordinator

(Dr. Vinayak Kottawar) HOD Computer