|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | |
| **Continuous Assessment Test (CAT II Syllabus)** | | | | | | | | |
| Programme | | | : | **M.Tech., (SDM)** | Semester | : | **III & IV** | | |
| Course | | | : | **Mathematical Foundation for Computer Science** | Code | : | **MAT5** | | |
| Faculty | | | : | **Dr. S. Hariharan** | Slot(s) | : |  | | |
| Time | | | : | **1½ Hours** | Max. Marks | : | **50** | | |
| **Answer ALL** | | | | | | | | |
| 1. |  | Find the PCNF and PDNF of . Also draw the circuit diagram for the given expression | | | | | | [10] | | |
| 2. | a)  b) | Are the system specifications consistent? “If the file system is not locked, then new messages will be queued. If the file system is not locked, then the system is functioning normally and vice versa. If the new messages are not queued, then they will be sent to the message buffer. If the file system is not locked, then new messages will be sent to the message buffer. New messages will not be sent to the buffer”.  Check whether the given expression is a tautology or not? | | | | | | [6]  [4] | | |
| 3. | a)  b) | Show that the premises “ A student in this class has not read the book” and “ Everyone in this class passed the first exam” imply the conclusion “ Someone who passed the first exam has not read the book”  Express the following using predicates, quantifiers and logical connectives, if necessary  i) All users on the campus network can access all websites whose url has a .edu extension.  ii) Every user has access to exactly one mailbox  iii) Some student in this class grew up in the same town as exactly one other student in this class. | | | | | | [6]  [4] | | |
| 4. |  | Construct a K-map to simplify . Also draw the circuit diagram of the given expression. | | | | | | [10] | | |
| 5. |  | Use the Quine-McCluskey method to simplify the sum-of-products expansion of the boolen expression . | | | | | | [10] | | |