

COMPUTER SCIENCE, PAPER-II

- Q.5. (a) Compare Transmission Control Protocol and User Datagram Protocol. How they are used in wireless networks? (6)
- (b) What mechanism is used by TCP to protect itself from miss delivery? (6)
- (c) Calculate the TCP window size to fully utilize the line on which WAN link is 2 Mbps and RTT between source and destination is 300 msec. (8)

SECTION – B

- Q.6. Consider the following database schema and write the relational algebra expression for the following queries.
- Students (Stu_Reg, Stu_Name, Stu_Address)
 Instructor (Ins_ID, Ins_Name, Ins_Dept_ID)
 Course (Cr_Code, Cr_Title, Cr_CrHours)
 Dept (Dept_ID, Dept_Name)
 Results (Res_Stu_Reg, Res_Cr_Code, Res_Marks, Res_Ins_ID, Res_Grade)
- (a) Write relational algebraic expression for:
- To display all the students details in section BSSE. (8)
 - To display all Instructor Names and their respective Department Names, (if an instructor is not assigned any Dept his name should be displayed as well).
 - To display Stu_Reg, Stu_Name, Cr_Code, Cr_Title and Res_Marks for students who got 75 or more marks.
 - To display Res_Stu_Reg, Ins_Name, Res_Grade for Instructors whose Dept_ID is 1.
- (b) What is the concept of gerund in database? Give one example of gerund. Is this essential to eliminate gerunds from the database? If yes, how and if no, why? (12)
- Q.7. (a) Write code/pseudo code to locate all of the large boxes in the image below using morphological image processing. (8)



- (b) Is there a need for more than 1 color model? Mention different colors models and there uses. (6)
- (c) Explain CMY color model, its use and how is it different from CMYK? (6)
- Q.8. (a) Analyze the code and draw resulting table as drawing on the paper (8)
- ```
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<tr><td>6</td><td>7</td><td>18</td></tr>
<tr><td colspan="3">9</td></tr>
<tr><td>10</td><td colspan="3">11</td></tr>
<tr><td>12</td><td>13</td><td>14</td></tr>
<tr><td rowspan="2">15</td><td colspan="2">16</td><td>17</td></tr>
</table>
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- (b) What is the role of requirement engineering in web engineering? List functional and non-functional requirements for a website. (6)
- (c) What are different security mechanisms used for encrypting the contents of a website? Explain one in detail. (6)

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