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| 16. List the factors to ensure secure routing in ad hoc networks.  | CO3 | [K <sub>2</sub> ] |
| 17. List various methods to save battery power in sensor networks. | CO4 | [K <sub>2</sub> ] |
| 18. How is dynamic power management done?                          | CO4 | [K <sub>2</sub> ] |
| 19. How to improve quality of sensor networks?                     | CO5 | [K <sub>2</sub> ] |
| 20. List few challenges in in-network aggregation.                 | CO5 | [K <sub>2</sub> ] |

**Answer any FIVE Questions:-**

**PART C (5 x 14 = 70 Marks)**

**(Answer not more than 300 words)**

**Q.No. 21 is Compulsory**

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| 21. Analyze the issues in designing MAC protocol for wireless networks.                                | CO1 | [K <sub>2</sub> ]     |
| 22. a) Explain how routing is initiated and maintained in on demand multicast routing protocols.       | (7) | CO2 [K <sub>2</sub> ] |
| b) Summarize the features of ZRP. Explain its operation.   | (7) | CO2 [K <sub>2</sub> ] |
| 23. a) Explain how routing protocols in ad hoc networks could be secured?                              | (7) | CO2 [K <sub>2</sub> ] |
| b) Analyze how each layer of HIPERACCESS is designed for broad band access                             | (7) | CO1 [K <sub>2</sub> ] |
| 24. a) Analyze the attacks in various layers of ad hoc networking.                                     | (7) | CO3 [K <sub>3</sub> ] |
| b) Discuss the various key management approaches for Ad hoc wireless network                           | (7) | CO3 [K <sub>2</sub> ] |
| 25. a) Analyze how system power management can be used to increase the life time of an ad hoc network. | (7) | CO4 [K <sub>3</sub> ] |
| b) Explain how Data dissemination is done in WSN.  | (7) | CO5 [K <sub>2</sub> ] |
| 26. a) Outline the need for energy management in ad hoc networks.                                      | (7) | CO4 [K <sub>2</sub> ] |
| b) Analyze how system power management can be used to increase the life time of an ad hoc network.     | (7) | CO4 [K <sub>3</sub> ] |
| 27. a) Summarize the significance of location discovery in sensor networks                             | (7) | CO5 [K <sub>2</sub> ] |
| b) Explain how Data gathering is done in WSN.  | (7) | CO5 [K <sub>2</sub> ] |

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