

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)

CLASS: MTECH  
BRANCH: CSE

SEMESTER : I  
SESSION : MO/18

SUBJECT: IT503-WIRELESS SENSOR NETWORKS

TIME: 03:00

FULL MARKS: 50

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Give a comparative account of traditional network and wireless sensor network in terms of challenges and constraints of WSN. [5]
- (b) Name and evaluate the different performance parameters of single hop and multi-hop communication in WSN. [5]
- Q.2(a) Discuss propagation and propagation impairments. How propagation impairments give rise to multipath. [5]
- (b) Discuss with example why we need localization in WSN. Compare anchor and range-based localization. [5]
- Q.3(a) Elaborate the contention-free and contention-based medium access strategies with advantages and disadvantages. Can one be preferable over other? [5]
- (b) Define RTS and CTS with diagram. Assume that the RTS and CTS frames are as long as DATA and ACK frames. Justify the advantages of using CTS/RTS with your decision of applying or not applying of CTS/RTS. [5]
- Q.4(a) Name and explain routing challenges and design issues in Wireless Sensor Network. [5]
- (b) Is data-centric routing feasible in WSN? Give the objective and basic protocol operation of SPIN. [5]
- Q.5(a) What are the challenges of security in WSN? What characteristic of WSN make routing difficult to implement. [5]
- (b) "Sensor Networks are vulnerable to a variety of attacks that attempt to compromise the network's operation and data generated by sensor nodes". Justify. [5]

\*\*\*\*\*26.11.18\*\*\*\*\*M