

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

**CLASS: BTECH  
BRANCH: ECE**

**SEMESTER : VII  
SESSION : MO/2024**

**SUBJECT: EC433 WIRELESS SENSORS AND NETWORKS**

**TIME: 3 Hours**

**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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		<b>CO</b>	<b>BL</b>
Q.1(a)	Explain concept and architecture of Wireless Sensor Networks. Discuss design challenges of Wireless Sensor Networks. How it is different from Ad-hoc networks.	[5] 1	2,3
Q.1(b)	Discuss in detail Data aggregation strategies in WSN	[5] 2	2
Q.2(a)	Discuss various aspects of energy efficient WSN design	[5] 2	2
Q.2(b)	Explain the operating system and execution environment required for WSN	[5] 2	3
Q.3(a)	Discuss Low duty cycle protocols and wakeup concepts for WSN. Compare LEACH, SMACS, and TRAMA in brief	[5] 3	2,3
Q.3(b)	Explain topology control and clustering for IEEE 802.15.4 MAC protocol	[5] 3	3
Q.4(a)	Explain Energy efficient unicast routing and compare it with Energy efficient multicast routing	[5] 4	2,3
Q.4(b)	Discuss Geographical routing and explain design issues of transport control protocols.	[5] 4	3
Q.5(a)	Compare Proximity, Trilateration and Triangulation schemes of positioning and localization used in WSN.	[5] 5	3
Q.5(b)	Identify the position of sensor node if three anchors are positioned at( $x_1, y_1$ ) = (2, 1), ( $x_2, y_2$ ) = (5, 4), and ( $x_3, y_3$ ) = (8, 2). and the distances between anchors and node of unknown position $r_1 = \sqrt{10}$ , $r_2 = 2$ , $r_3 = 3$	[5] 5	3

:::22/11/2024 M:::