

2011 Paper 9 Question 12

Topical Issues

- (a) Describe the Binary Exponential Backoff (BEB) procedure found in 802.11 (WiFi) and explain why it is necessary. Give **two** shortcomings of the BEB approach. [4 marks]
- (b) Describe **two** modifications to the BEB algorithm that could be made by a malicious user attempting to increase their chances of gaining access to the wireless channel. At least one of your modifications, if used by all wireless stations, should enable the provision of Quality of Service and you should explain how it would do so. [6 marks]
- (c) Discuss the behaviour of the BEB procedure in heavily congested networks. Propose an alternative procedure, which may be based on BEB, that has improved behaviour in such networks. Take care to explain how it outperforms the default technique. Discuss how your solution behaves in lightly congested networks. [10 marks]