

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. What are the advantages of digital communications as compared with analog communications? Why the analog FM broadcast is still quite popular today as compared with digital audio broadcast (DAB)? (20%)
2. Describe the main functions of a mixer in a communication system and indicate its principles. (20%)
3. What is Internet of Things (IoT)? Indicate its main characteristics and possible applications. (20%)
4. Describe in detail the principles of FFT. Take a few examples to explain its applications in a real-world communication system (20%).
5. In practice, the WLAN or 802.11 technique uses unlicensed frequency bands (2.4 GHz and 5 GHz). In contrast, the 3G/4G wireless communication technique must use licensed frequency bands (900MHz/1800MHz/2200MHz). What are the possible reasons behind the above regulations? (20%)