SECTION A. Answer to all questions / 20 Marks
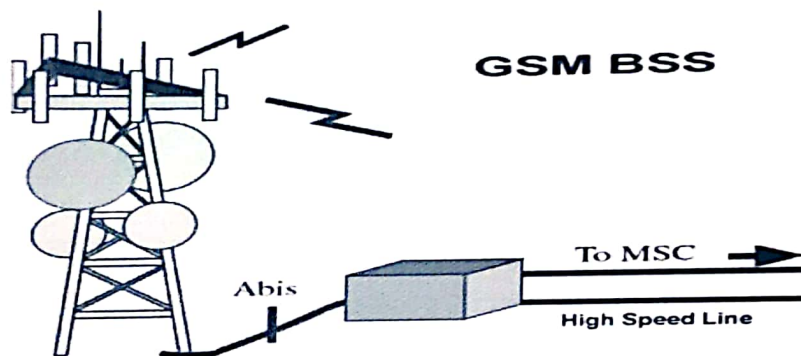
1. USSD is a fundamental service provided by all <u>GSIM</u> network operators that enable the exchange of menus (or strings) with a subscriber. True or False

2. The acronym USSD stands for Unstructured Supplementary Service Data. True or False

3. As per all types of network specifications, a USSD message can be a maximum of 160 bytes long. True or False

4. USSD enables a mobile operator to provide, call-back service while roaming, location-based services, balance services, content marketing based on location. True or False

5. To access a service over USSD, a mobile subscriber dials a known string (e.g., *123#), and the home network of the cellular operator responds with the required menu or content. True or False

6. HLR is a subscriber database in-home network. After a successful location update, VLR stores the GT4 (SCCPaddress) of HLR. True or False

7. A VLR is a database that stores the subscriber profile temporarily. True or False

8. VAS provides a Global title and a Point Code. This is the address of the VAS node in the mobile network. True or False

9. The MS also provides the receptor for SMS messages, enabling the user to toggle between the voice and data use. True or False

10. An MSC or mobile switching center is a GSM node in a visiting network. One side connects to the wireless network via BSC or RNC. Another side connects to the PSTN or SS7 network. Mostly it is co-located with the SLR. True or False

SECTION B. Attempt any Two questions / 20 Marks

11. Explain clearly four (4) USSD parameters.

12. Based on a diagram below, Differentiate correctly The Base Transceiver Station (BTS), the Base Station Controller (BSC

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To MSC

Abis

High Speed Line

13. Explain three **(3)** functional Network Switching Subsystem elements.

14. Explain four **(4)** GSM specification used in USSD.

SECTION C. Compulsory question /10 Marks

15. **a)** Using a diagram, Explain correctly how USSD gateway work? **(5 Marks)**

   b) List four **(4)** benefits of USSD application. **(2 Marks)**

   c) Enumerates five **(5)** Libraries that can be used for developing USSD applications. **(3 Marks)**

GOOD LUCK!