# Unit 9 - Week 8



## Assignment 8

**The due date for submitting this assignment has passed.** Due on 2019-04-24, 23:59 IST.
**As per our records you have not submitted this assignment.**

1) The following are certain statements on 'CE' marking of the European Union. Pick all true statements. *1 point*

i) 'CE' marking on a product means that it complies with the EMC Directive (2014/30/EU) of the European Union.
ii) 'CE' marking is not compulsory for products made outside EU, but sold in EU.
iii) 'CE' marking of European Union and 'FC' marking of FCC in USA are based on the same underlying tests, and hence an equipment passing tests for 'CE' marking will surely pass the tests for 'FC' marking
iv) 'CE' marking ensures that the emission from the product is not beyond certain levels.

- All above statements are true
- Only i), iii) and iv) are true
- Only i) and ii) are true
- Only i) and iv) are true

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*Only i) and iv) are true*

2) What can you say about a product with 'CE' marking *1 point*

- 'CE' marking gives certain minimum quality and reliability to the product.
- 'CE' marking implies that products from two different manufacturers with same specification will have the same EMC performance.
- 'CE' marking ensures that the product has certain level of Electromagnetic Compatibility under specified conditions where it was intended to be used.
- 'CE' marking ensures that the product can be used in any electromagnetic environment within Europe.

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*'CE' marking ensures that the product has certain level of Electromagnetic Compatibility under specified conditions where it was intended to be used.*

3) What could be the main problem in using a product in home environment while it was originally tested against the EMC standard for industrial environment and 'CE' marked. *1 point*

- In the home environment the product may emit more than desired and risk disturbing other systems.
- No problems at all if it is 'CE' marked.
- In the home environment the product is more susceptible to be disturbed by other sources.
- The safety of the equipment may not be as desired for the home environment.

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*In the home environment the product may emit more than desired and risk disturbing other systems.*

4) Which test method could be most suitable for immunity testing of a mobile phone over a wide frequency range. *1 point*

- Open Area Test Sites (OATS)
- Anechoic chamber (AC)
- Reverberating Chamber (RC)
- Gigahertz Transverse Electromagnetic Cell (GTEM)

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*Gigahertz Transverse Electromagnetic Cell (GTEM)*

5) When Anechoic chamber is used for emission testing, what influence the dimensions of the chamber will have. *1 point*

- No influence as long as the object and test instruments fits in the chamber.
- The dimensions influence the highest test frequency.
- The dimensions influence the lowest test frequency.
- Dimensions are mostly a cost issue for fitting larger objects.

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*The dimensions influence the lowest test frequency.*

6) Pick all true statements regarding a reverberation (mode-stirred) chamber. *1 point*

i) Most suited for radiated immunity
ii) High fields for the same power
iii) Lower frequency limited by the size of chamber
iv) No particular polarization for the fields

- All statements true
- Only i), ii) and iii) are true
- Only i), ii) and iv) are true
- Only i) and iv) are true

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*All statements true*

7) Pick all true statements regarding a TEM cell *1 point*

i) EUT (Equipment Under Test) under free-space condition.
ii) No low frequency cut-off, upper-frequency limited only by fundamental waveguide mode
iii) Most suited for radiated immunity tests
iv) High fields can be created.

- All statements true
- Only ii), iii) and iv) are true
- Only ii) and iii) are true
- Only i), iii) and iv) are true

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*All statements true*

8) Pick all true statements regarding Open Area Test Site. *1 point*

i) It is a very cheap test method.
ii) Finite ground conductivity may affect accuracy of measurement unless compensated for
iii) Background EM noise may affect test results.
iv) Considered as a reference method for other test methods.

- All statements true
- Only ii), iii) and iv) are true
- Only ii) and iii) are true
- Only i), iii) and iv) are true

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*Only ii), iii) and iv) are true*

9) Pick the one most important difference between the scenario of a normal EMI and Intentional EMI (IEMI). *1 point*

- Higher signal strengths for IEMI
- IEMI not tested against standards
- The intention behind IEMI makes it different
- COTS devices are more vulnerable to IEMI

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*The intention behind IEMI makes it different*

10) Why advanced modern society may be more vulnerable to IEMI now than before? Pick all true statements. *1 point*

i) Miniaturization of components and lower signal levels are used in systems.
ii) More commercial EM sources available that can act as weapons.
iii) Our society is today extremely dependent on interconnected electrical and electronic systems for its function.
iv) Proliferation of electronic devices not tested for civilian EMC compliance.

- Only i), ii) and iii) are true
- All statements are true
- Only ii), iii) and iv) are true
- Only i) and iii) are true

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*Only i), ii) and iii) are true*

11) Why a system designed as per normal rules of EMC may not be withstanding an IEMI attack? Identify all true statements. *1 point*

i) IEMI source characteristics could be different from that considered for normal EMC design.
ii) The systems are susceptible to much wider frequency bands than that they are tested for in normal EMC design
iii) Compromise of zoning principles due to the intent behind IEMI
iv) The immunity levels of systems need to be raised much higher for withstanding IEMI.

- All statements are true
- Only i) and ii) are true
- Only i), ii) and iii) are true
- Only i), iii) and iv) are true

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*Only i), ii) and iii) are true*

12) Identify the most important factors to consider while adopting methods for achieving EMC under IEMI threat. Choose from the following statements. *1 point*

i) Existing EMC test standards need to be replaced with IEMI test standards
ii) A systematic approach of EMC design by analysing the source, coupling path, and the victim need to be adopted.
iii) The IEMI vulnerability cube – Accessibility, Susceptibility, Consequence - need to be analysed.
iv) Concept of graceful degradation need to be incorporated in system design.

- All statements are true
- Only ii) and iv) are true
- Only i), iii), and iv) are true
- Only ii), iii) and iv) are true

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*Only ii), iii) and iv) are true*