**Reg. No. :** 

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Second Semester

Agriculture Engineering

15UPH207 – PHYSICS FOR AGRICULTURAL ENGINEERING

(Regulation 2015)

Duration: Three hours                                            Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The conductors having _____ conductivity  materials.

    (a)  high                (b) low                (c) both                (d) none of these

2. Internal field due to

    (a) magnetic dipoles                        (b) current
    (c) electric dipole                          (d) Lorentz field

3. Photo voltaic cell is received energy from

    (a) sun light          (b) moon light          (c) wind          (d) tides

4.    GASIFICATION is the process of producing

    (a) petroleum          (b) biogas          (c) coal          (d) none of these

5. Metallic glasses are also called

    (a) Amorphous metals                        (b) Non-Amorphous metals
    (c) Crystalline metals                       (d) None of these

6. If  the C-C bond is parallel to the axis of the tube then the type of CNT is

    (a) chiral          (b) arm chair          (c) zig-zag          (d) none of these

7. The pattern of electromagnetic radiation that identifies a chemical or compound is

    (a) spectral signature               (b) special resolution

    (c) photon                             (d) pixel

8. Absorbance is measurement of flux _____ through the specimen.

    (a) transmitted                  (b) passed

    (c) absorbed                    (d) none of these

9. The most commonly used isotope in food irradiation is

    (a) Co-60         (b) B-60         (c) U-231         (d) both (a) and (b)

10. The unit radiation used in food irradiation is

    (a) N             (b) Kg             (c) Gray             (d) J

## PART - B (5 x 2 = 10 Marks)

11. State Wide mann Franz law.

12. Give some name of the Renewable energy sources.

13. What is transition temperature?

14. What is spectral signature?

15. Give any three applications of food irradiation.

## PART - C (5 x 16 = 80 Marks)

16. (a) (i) On the basis of free electron theory derive an expression for the electrical conductivity and Explain Lorentz number. (10)

    (ii) Find the collision time of conduction electrons in a metal of resistivity $1.54 \times 10^{-8}$ ohm meter if the metal has $5.8 \times 10^{28}$ conduction electrons /m$^3$. (6)

Or

    (b) Define local field and derive the Classius Mosotti equation. (16)

17. (a) Explain about renewable energy systems. (16)

Or

    (b) Explain briefly about conventional energy systems. (16)

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18. (a) What are Metallic Glasses? Explain in detail about production and give its applications. (16)

Or

(b) Write short notes on CNT. (16)

19. (a) What is electromagnetic spectrum? and Explain the transmittance absorptance and reflectance of radiation incident on a specimen. (16)

Or

(b) Explain about remote sensing method. (16)

20. (a) Explain the effect of ionizing radiation in biological organism. (16)

Or

(b) Explain the applications of food irradiation by dosage level of radiation. (16)

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