A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 52008

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

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. CO1- R

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

2. A dielectric can be made a conductor by _____ CO1- R

   (a) Compression (b) Heating (c) Doping (d) Freezing

3. Which of the following is not a renewable energy source? CO2- R

   (a) Biomass conversion (b) Solar (c) Hydroelectric (d) Oil

4. What is the percentage at which rated power from biogas in petrol engine can be developed? CO2- R

   (a) 45% (b) 65% (c) 75% (d) 85%

5. Metallic Glasses exhibit the property of _____ CO3- R

   (a) Metals and glass (b) Non-Metals and glass

   (c) Metals (d) Glasses

6. Multi walled CNT are _____ concentric nano tubes. CO3- R

   (a) Single (b) Double (c) Triple (d) Multiple

7. An array of pixel is CO4- R

   (a) photon (b) phonon (c) digital image (d) $P = (\varepsilon_r - 1)\,\varepsilon_o$

8. Passive sensors work during_____ CO4- R

   (a) Day (b) Night (c) Day and night (d) None

9. Which of the following fact about radiation / irradiation is true? CO5 R

(a) All food items consumed by man are radioactive

(b) Alpha and beta particles and gamma photons are the radiations available for food preservation applications

(c) Energy lost per ion pair formed is greater than the ionization energy

(d) All of the mentioned

10. The unit radiation used in food irradiation is CO5- R

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

PART – B (5 x 2= 10 Marks)

11. Define Collision time. CO1- R

12. Give some name of the Renewable energy sources. CO2- R

13. What is Metallic glass? CO3- R

14. Give some applications of Remote sensing techniques for Agricultural survey. CO4- U

15. What are the main sources of radiations used in food irradiation?. CO5- Ana

PART – C (5 x 16= 80 Marks)

16. (a) On the basis of free electron theory derive an expression for the Electrical and Thermal Conductivity and Explain Widemann Franz law & Lorentz number. CO1-U (16)

Or

(b) Deduce an expression for the internal field and Classius – Mossotti relation. CO1-U (16)

17. (a) Explain about renewable energy systems. CO2-U (16)

Or

(b) Describe in detail conventional and nonconventional energy systems. CO2-U (16)

18. (a) What are Metallic Glasses? Explain in detail about production and give its applications. CO3-U (16)

Or

(b) (i) Describe the principle, construction and working of Ball Mill to produce nanomaterials. Give some applications. CO3-U (10)

(ii) Associate an introduction to CNT. CO3-U (6)

19.	(a)	What is electromagnetic spectrum? and Explain the transmittance absorptance and reflectance of radiation incident on a specimen.	CO4- U	(16)
		Or		
	(b)	(i) Differentiate active sensors from passive sensors.	CO4- U	(8)
		(ii) Analyze the radiant energy and radiant intensity.	CO4- U	(8)
20.	(a)	Discuss the effects of ionizing radiation on foods.	CO5- U	(16)
		Or		
	(b)	Explain the biological effect of ionizing radiation on organisms.	CO5- U	(16)

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