Question Bank (G scheme)

Name of subject: Applied Physics **Unit Test :II**
Subject code: 17202 **Course : ME**
Semester: II

Chapter 3 : Thermocouple

Questions for 2 marks-

1] State joule's law.
2] Give difference between Peltier effect and joule's heating effect
3] Explain graph of thermoemf against temperature
4] Define neutral temperature and inversion temperature

Questions for 3 marks-

1] Explain seebeck effect, peltier effect.
2] Explain thermocouple and explain how it isused to measure thermo emf.
3] Define thermoemf, thermoelectric current on what factors it depends
4] A electric geezer of 150 ohm generates 550 kcal heat in 30 minutes what the voltage of mains? J=4200J/kcal.

Chapter 4 : Modern physics.

Questions for 2 marks-

1. What is photoelectric effect?
2. Define the terms :-
   a] Threshold frequency.
   b] Stopping potential.
3. Define photoelectric work function
4. Explain experiment to study photoelectric effect
5. Why electrons are not emitted from the surface of metal plate, if frequency of incident radiation is less than threshold frequency.
6. Draw a labelled diagram of photoelectric cell
7. State the applications of photoelectric cell.
8. The photoelectric work function of a photoelectric material is 3×10^{-19}J. Calculate its threshold wave length.
9. Give four application's of x-rays
10. State four important properties of x-rays
11. Calculate the minimum applied potential required to produce X-rays of 0.4A○ wavelength.

12. The energy of x-rays spectrum is 4.4ev. Find it frequency
    Given: h=6.63×10 $^{-34}$Js and lev=1.6×10 $^{-19}$J.
13. Define spontaneous emission and explain.
14. Define stimulated emission and explain.
15. Define optical pumping.
16. What is ordinary excited state and meta stable state
17. State and explain properties of laser .

Questions for 3 marks-

1. What is photon? State two properties of photon
2. Explain experiment to study photoelectric effect
3. State four characteristics of photoelectric effect
4. State Einstein photoelectric equation. Explain the significance of each term involved in it.
5. State any four application's of photoelectric cell
5. If a light of wavelength 4000 A○ is incident on a metal surface of work function 5ev, will the electrons be ejected or not?
6. The photoelectric work function of a certain metal is 3×10 $^{-19}$ joules. Calculate its threshold frequency, if plan ck's constant is 6.625×10 $^{-34}$Js.
7. Find the maximum k.£. of photoelectrons ejected from surface of metal of light of frequency 2×10 ^{15} Hz
   (Given threshold wave length for metal =5200A○) .

Q1] 2marks each.

1] State joule's law.
2] Give difference between Peltier effect and joule's heating effect
3] Explain graph of thermoemf against temperature
4] Define neutral temperature and inversion temperature
5] What is photoelectric effect?

6] Define the terms :-

a] Threshold frequency.

b] Stopping potential.

7] Define photoelectric work function

8] Explain experiment to study photoelectric effect

9] Why electrons are not emitted from the surface of metal plate, if frequency of incident radiation is less than threshold frequency.

10] Draw a labelled diagram of photoelectric cell

11] State the applications of photoelectric cell.

12] The photoelectric work function of a photoelectric material is 3×10^{-19}J. Calculate its threshold wave length.

13] Give four application's of x-rays

14] State four important properties of x-rays

15] Calculate the minimum applied potential required to produce X-rays of 0.4A○ wavelength.

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Given: h=6.63×10^{-34}Js and lev=1.6×10^{-19}J.

17] Define spontaneous emission and explain.

18] Define stimulated emission and explain.

19] Define optical pumping.

20] What is ordinary excited state and meta stable state

21] State and explain properties of laser .

Q2] 3marks each.

1] Explain seebeck effect, peltier effect.

2] Explain thermocouple and explain how it isused to measure thermo emf.

3] Define thermoemf, thermoelectric current on what factors it depends

4] A electric geezer of 150 ohm generates 550 kcal heat in 30 minutes what the voltage of mains?
J=4200J/kcal.

5] What is photon? State two properties of photon

6] Explain experiment to study photoelectric effect

7] State four characteristics of photoelectric effect

8] State Einstein photoelectric equation. Explain the significance of each term involved in it.

9] State any four application's of photoelectric cell

10] If a light of wavelength 4000 A○ is incident on a metal surface of work function 5ev, will the electrons be ejected or not?

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