model questions on chapters 22 and 29

Chapter 22	
1. **Energy transforred in a form that can perform mechanical wave**	Work
2. **The series of biochemical reactions which convert stored energy in food molecules to other form**	Metabolism
3. **The amount of energy transferred to the body by oxidation of food**	Metabolic rate
4. **The statement that the energy is conserved.**	first law of thermodynamics
5. **Energy can be transferred from one form to another, but it can be neither destroyed nor created**	first law of thermodynamics
6. **ΔU = Q-W-E is**	first law of thermodynamics
7. **Hyperthermia results if the core temperature of the body remains**	more than 37 oC
8. **The net rate of energy loss = rate of heat loss – metabolic rate**	True
9. **The ratio of mechanical work done by the body to the energy used for mechanical work is called**	efficiency
10. **A 70 kg man has a core temperature of 37 oC . The specific heat capacity of human tissue is 3500 Jkg-1K-1. He loses heat at a rate of 350 W to the surrounding for two hours. If the metabolic rate is 150 W, calculate the temperature?**	$\dfrac{(350-150)\times 7200}{70\times 3500}=5.8$
11. **A 70 kg man has a core temperature of 37 oC . The specific heat capacity of human tissue is 3500 Jkg-1K-1. He loses heat at a rate of 350 W to the surrounding for two hours. If the metabolic rate is 150 W, will he be hypothermic?**	yes
12. **If the metabolic rate is lower than the rate of heat loss to the environment**	Hypothermia
13. **If the metabolic rate is lower than the rate of heat loss to the environment**	Hyperthermia
14. **Net energy loss x time give the**	Total energy loss
15. **There are three ways the body can lose or gain energy**	1. Transfer with the 2. Doing work 3. Gain of material by the system
Chapter 29	
16. **------ waves are electromagnetic waves.**	light
17. **Electromagnetic radiation in and around the wavelength range visible to human(380 nm to 750 nm)**	light
18. **As a time-varying electric field generates a magnetic field and vice-versa**	Electromagnetic waves
19. **The range of possible frequencies of electromagnetic waves**	Electromagnetic spectrum
20. **A discrete packet of electromagnetic radiation**	photon
21. All electromagnetic radiation travels at the same speed in a vacuum	Speed of light
22. **The distance between two consecutive points on a wave that are in phase**	Wavelength
23. **Number of repetitions of a complete wave form (cycle) per unit time**	Frequency
24. **A change of the direction of the light when it hits and is turned back from a surface or boundary**	Reflection
25. **The angle of incident = the angle of reflection**	Law of reflection
26. **The change in propagation direction of a wave due to the change in the wave speed as the wave passes from one transparent medium into another**	Refraction
27. **When radiation is reflected from a surface that is flat compared with the wavelength of radiation**	Specular reflection

28. When the surface is rough compared to the wavelength of the radiation light come from a single direction	Diffuse reflection
29. When the angle of incidence (at a boundary from a one medium to a medium with a lower refractive index) is greater than a critical angle.	Total internal reflection
30. If the rays of light remain parallel after reflection, then it called------ reflection.	specular
31. According to law of reflection, the angle of incidence is always equal to the angle of reflection	true
32. Diffuse reflection takes place from…………… surfaces	rough
33. The speed of light in vacuum divided by its speed in water gives………. of the water	refractive index
34. The unit for refractive index of a material is…	none
35. Yellow light passes from air (n=1) into glass (n= 1.66). the speed of light in air is 3×10^8 m/s, what is the speed of light in glass?	1.8×10^8 m/s
36. The critical angle is given by	$\sin\theta c = n2/n1$
37. What is the critical angle for total internal reflection when light comes from diamond (n= 2.10) to air (n=1)?	Θ_c= 28.43
38. . Light is incident on water surface at an angle of 400 to the normal. The angle of refraction in water will be? (the refractive index of water is 1.33)	60