Practical Tests of Biochemistry Unit 1

1**. Beer’s law states that the absorbance of solution is directly proportional to…..**

1. Concentration of substance
2. Length of path
3. Optical density
4. All

**2. Colorimeter can record color solution of**

1. Visual wavelength
2. UV Ray wavelength
3. Infrared ray wavelength
4. All

3. **The lamp used in spectrophotometer is**

1. Tungsten lamp
2. Deuterium lamp
3. Light bulb
4. None

**4. Colorimeter can not analyze……………**

1. Colorless solutions
2. UV absorbance
3. Infrared absorbance
4. All

**5. Cuvette used in spectrophotometer is……………**

1. Glass cuvette
2. Plastic cuvette
3. Quartz cuvette
4. Diamond cuvette
5. **A spectrophotometer differs from a colorimeter by:**  
   a) Measuring only in the visible spectrum  
   b) Measuring across a wider range of wavelengths, including UV and infrared  
   c) Not requiring a monochromator  
   d) Not measuring transmittance
6. **What is the recommended temperature range for a water bath used in enzyme assays?**  
   a) 0-20°C  
   b) 20-37°C  
   c) 37-60°C  
   d) 60-100°C
7. **Which of the following is NOT a component of a typical spectrophotometer?**  
   a) Light source  
   b) Detector  
   c) Thermometer  
   d) Sample compartment
8. **What is the standard wavelength used for measuring glucose concentration in blood using a colorimeter?**  
   a) 340 nm  
   b) 520 nm  
   c) 600 nm  
   d) 700 nm
9. **The heating mechanism in a water bath ensures:**  
   a) Equal temperature distribution  
   b) Rapid boiling of the sample  
   c) UV sterilization of samples  
   d) Electrical isolation of samples
10. **Stray light in a spectrophotometer affects which measurement parameter?**  
    a) Absorbance  
    b) Concentration  
    c) Path length  
    d) Wavelength
11. **What is the principle of operation for a water bath in biochemistry experiments?**  
    a) Conductive heating  
    b) Convective heating  
    c) Radiative heating  
    d) Mechanical heating
12. **The blank solution in a colorimetric analysis is used to:**  
    a) Calibrate the wavelength of light  
    b) Correct for background absorbance  
    c) Increase sample concentration  
    d) Adjust the path length
13. **Which wavelength is most appropriate for measuring NADH in a spectrophotometer?**  
    a) 280 nm  
    b) 340 nm  
    c) 450 nm  
    d) 600 nm
14. **The path length of a cuvette typically used in spectrophotometry is:**  
    a) 0.5 cm  
    b) 1 cm  
    c) 2 cm  
    d) 5 cm
15. **Which type of light source is commonly used in UV spectrophotometers?**  
    a) Tungsten lamp  
    b) Halogen lamp  
    c) Xenon lamp  
    d) Deuterium lamp
16. **How is the wavelength accuracy of a spectrophotometer verified?**  
    a) Using a standard solution of known absorbance  
    b) Measuring the boiling point of water  
    c) Using filters or standard lamps with specific emission lines  
    d) Measuring room temperature
17. **The purpose of using filters in a colorimeter is to:**  
    a) Focus the light beam  
    b) Improve the resolution of measurements  
    c) Isolate specific wavelengths  
    d) Reduce noise in the circuit
18. **What is the usual range of temperatures for a biochemical water bath used in clinical labs?**  
    a) 20-80°C  
    b) 30-50°C  
    c) 10-90°C  
    d) 5-60°C
19. **Beer's law is valid only when:**  
    a) The light source is monochromatic  
    b) Concentration is above saturation point  
    c) Solution is highly concentrated  
    d) Solvent absorbs light

**Answers**

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| **1.d** | **2.a** | **3.b** | **4.d** | **5.c** | **6.b** | **7.c** | **8.c** | **9.b** |
| **10.a** | **11.a** | **12.b** | **13.b** | **14.b** | **15.b** | **16.d** | **17.c** | **18.c** |
| **19.a** | **20.a** |