	INDIAN SCHOOL AL WADI AL KABIR	
Class: IX	**Department: SCIENCE 2024 – 25** **SUBJECT: DESIGN THINKING & INNOVATION**	**Date of submission:08.09.2024**
Worksheet No: **1 & 2** **WITH ANSWERS**	**MODULE 1 & 2: OBSERVATIONS THROUGH DOCUMENTARY PHOTOGRAPHY & FUNDAMENTALS OF 2D**	**Note:** **A4 FILE FORMAT**
NAME OF THE STUDENT	**CLASS & SEC: IX A TO I**	**ROLL NO.**

MULTIPLE CHOICE QUESTIONS

1. -------------------- is a highly creative person who enjoys solving problems

a) Creator

b) Innovator

c) Designer

d) Thinker

2. The -------------- is the physical rectangle in the center of your DSLR camera that reads the image from the lens.

a) Lens

b) Aperture

c) Shutter

d) Sensor

3.Full form of LED ?

a) Light emitting display

b) Light emitting diode

c) Low emitting display

d) Liquid emitting diode

4. In digital photography, a -------------- refers to the smallest unit of a digital image captured by a camera's image sensor.

a) Sensor

b) Pixel

c) Shutter

d) Aperture

5. What is the focal length of a normal lens?

a) 50 mm

b) less than 50 mm

c) More than 50 mm

d) -50 mm

6. Which mode is ideal for shooting small subjects like insects, flowers etc.?

    a) Landscape mode
    b) Macro mode
    c) Micro mode
    d) Portrait mode

7. Point, line, plane, volume is called as ----------------

a) Elements of design

b) Principles of design

c) Properties of design

d) Fundamentals of design

8.Connecting two point creates---------

a) Plane

b) Volume

c) Line

d) Prism

9. Which plane represents soft and smooth expression graphically?

a) Square

b) Circle

c) Triangle

d) Rectangle

10. Which number is known as the golden ratio?

a) 1.231
b) 1.618
c) 1.453
d) 1.897

DESCRIPTIVE TYPE QUESTIONS

1. What is design and explain about designer?

2. Explain five phases of the design thinking process with the help of a diagram.

3. Explain the term innovation.

4. Name any four types of cameras.

5. Differentiate between prime and zoom lenses.

6. What are the different genres of photography?

7. What do you mean by tessellating patterns? Give one example.

8. Show the pictorial representation of the golden spiral.

ANSWER KEY – MULTIPLE CHOICE QUESTIONS	
1	c) Designer
2	d) Sensor
3	b) Light emitting diode
4	b) Pixel
5	a) 50 mm

6	b) Macro mode
7	a) Elements of design
8.	c) Line
9	b) Circle
10	b) 1.618

SOLUTIONS FOR DESCRIPTIVE TYPE QUESTIONS

Ans. 1. Design is about understanding needs and being sensitive to issues, identifying problems that need to be solved, creating innovative appropriate solutions, and considering aspects of sustainability such that it makes a positive difference to life in our universe.

A designer is a highly creative person who enjoys solving problems. They enjoy being innovative because they are sensitive to the needs of people and understand the extent of the issues in society.

Ans. 2.
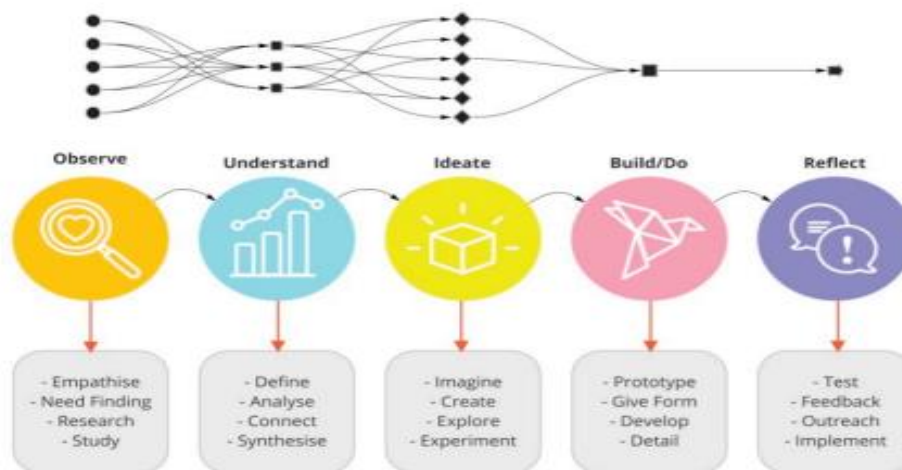
Ans. 3. Innovation involves the implementation of something new and replacing or reframing the existing mindset. It is about translating a concept, idea, thought, or invention into artefacts and services that create value in life. It is the process of transforming ideas into commercial reality. Innovation plays a major role in society.

Ans. 4. a) Point and Shoot

b) Bridge superzooms

c) Full frame DSLR

d) Medium format

Ans. 5.

Prime lenses   Vs   Zoom lenses

Prime lenses
- Fixed focal length
- Better image quality
- More expensive
- Less distortion or Aberrations

Zoom lenses
- Variable focal length
- Lower image quality
- Less expensive
- Distortion or Aberrations at the extreme ends of the zoom range
- Gives you Flexibility

**Ans. 6.** a) Wildlife photography

b) Sports photography
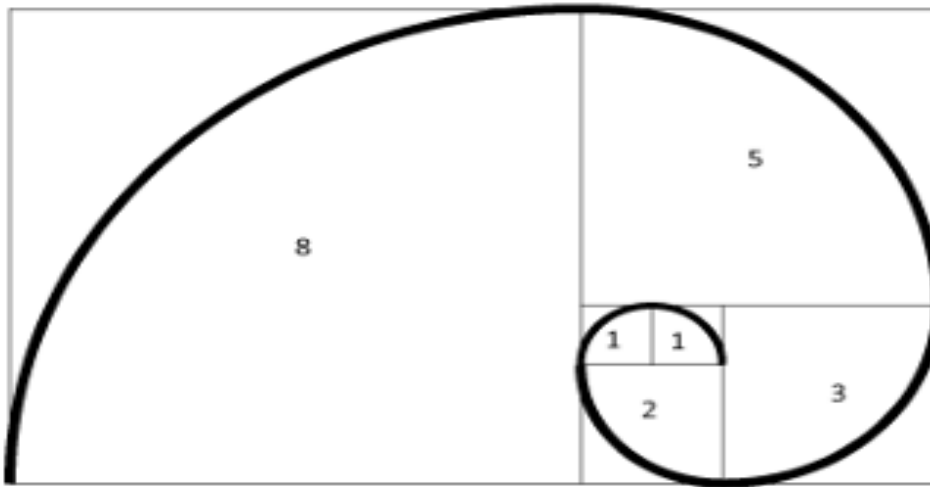
c) Macro photography

d) Street photography

Ans. 7. In a tessellation, a shape is repeated repeatedly such that there are no gaps or overlaps between the repeated shapes. Tessellations are also a form of tiling. - Triangles, squares, rectangles, and hexagons can be repeated to form tessellations.

The given below are the examples of tesselating patterns:
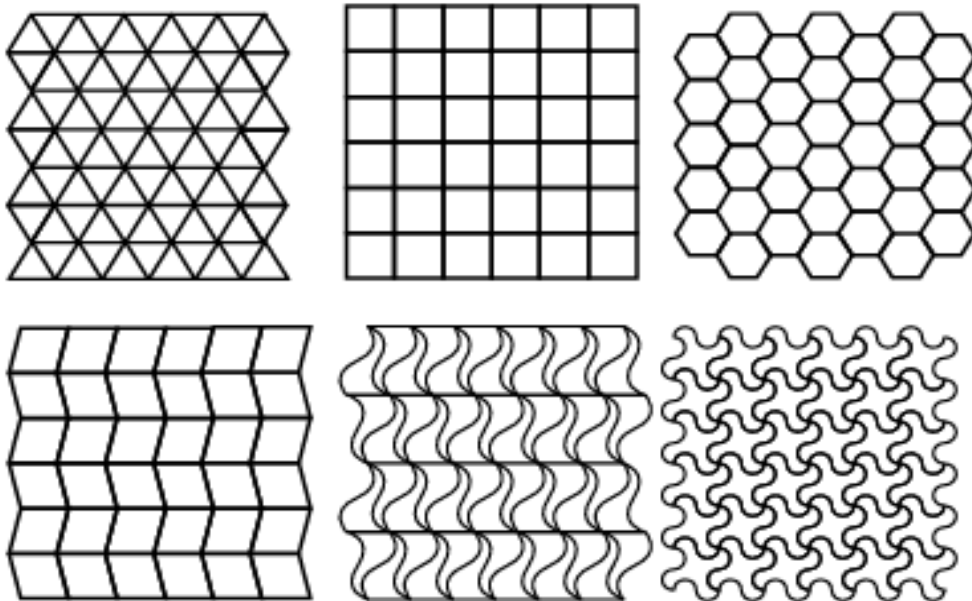
Ans. 8.

Fibonacci Sequence: 1, 1, 2, 3, 5, 8, 13, 21, 34, etc. If you divide the larger number by its previous number you get the golden ratio = 1.618 which is also called as Phi - if you draw and place squares with these numbers as its side, and connect the diagonals with a curve, it results in a spiral. This spiral is called as the golden spiral.

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