QUESTION 1
Thoughts about light have changed over time as we learn more about it. Our eyes causing vision to occur were proven wrong because it was impossible to see in the dark. This theory of light was presented to the people of his time by ...
A. Ptolemy
B. Aristotle
C. Pythagoras
D. Archimedes

QUESTION 2
When light is shone into a mirror, the angle of the incoming beam is equal to the angle of the outgoing beam. This understanding of light was suggested by ...
A. Ptolemy
B. Aristotle
C. Al-Haytham
D. Euclid

QUESTION 3
The 1st scientist to reasonably measure the speed of light was ...
A. Ole Romer
B. Isaac Newton
C. Albert Einstein
D. Albert Michelson

QUESTION 4
Archimedes understood that light travels in straight lines and can be reflected, his military plan, was to ...

QUESTION 5
Antonie van Leeuwenhoek used a simple microscope and discovered, what he called ...

QUESTION 6
The invention of the microscope enabled scientists to study micro-organisms. This area of science is called ...
A. Genetics
B. Microbiology
C. Cell Engineering
D. Animal Science

QUESTION 7
The type of telescope that collects light from distant objects using mirrors and focusing the light in the eyepiece is called ...

QUESTION 8
When a light bulb in a lamp receives electrical energy, it will produce light. The term that that is used to indicate that the light source produces light is ...
A. brilliant
B. electricity
C. luminous
D. intensity

QUESTION 9
This illustration demonstrates a type of reflection known as ...

QUESTION 10
This illustration, demonstrating how light travels, is referred to as ...

QUESTION 11
Reflection is the process in which light strikes a surface and bounces off that surface. The reflected ray will bounce back directly to the light source if it is lined up with the ...
A. incident ray
B. reflected ray
C. normal line
D. reflecting surface

QUESTION 12
A frosted window allows some light to pass through, but objects on the other side of the window cannot be seen in detail. The frosted window is an example of this type of material ...

20/03/2014
QUESTION 13
When you attempt to focus an image on a screen, using a concave mirror, but cannot, yet, you can see an image when are looking into the same concave mirror, the image is called a ...
A. virtual image  B. concave image  C. convex distortion  D. reflected distortion

QUESTION 14
When parallel rays of light hit the surface of this type of mirror, they are reflected back to a focal point in front of the mirror. The type of mirror that does this is called a ...

QUESTION 15
Cosmetic mirrors, flashlights, reflecting telescopes, and headlights in a car are all examples of practical applications for these type mirrors ...
A. plane mirror  B. bubble mirror  C. convex mirror  D. concave mirror

QUESTION 16
If an object is placed between the focal point in a concave mirror and the mirror itself, the image will appear ...
A. upright (right side up) and smaller  B. inverted (upside down) and smaller  C. upright (right side up) and larger  D. inverted (upside down) and larger

QUESTION 17
Refraction is the bending of light when it travels from one medium to another. What direction does the light bend when it travels from a medium of greater density to one of lesser density?

QUESTION 18
When the sky is refracted by warm air an illusion of a watery surface is created. This illusion is called a ...

QUESTION 21
When an object is farther away than the focal point of the double convex lens, the image that is formed is ...
A. real and inverted  B. virtual and inverted  C. virtual and upright  D. real and upright

QUESTION 22
Glass building blocks are used in many modern types of building and commercial construction projects. People even use them as part of an outer bathroom wall in a house. What property of light enables this construction practice to be practical in preserving the privacy of individuals behind the glass blocks?
QUESTION 25
White light is refracted through a device that breaks it up into all the visible colors that make up white light. The device that does this is called a …

____________________________________

QUESTION 26
Rainbows are formed in the sky – enabling us to see all the colors of the visible spectrum. What is needed in order for a rainbow to form?

____________________________________

QUESTION 27
Ultraviolet light can kill living cells in humans. If babies are born with a liver condition, which makes their skin yellow, they are placed under ultraviolet light to treat it. The skin condition is known as …
A. scurvy
B. eczema
C. jaundice
D. atrophy

QUESTION 28
Radar is an acronym for radio detection and ranging. These devices send out waves, which bounce off objects and return (obeying the law of reflection). Older radar devices used radio waves, whereas modern radar devices use …
A. microwaves
B. gamma rays
C. infrared waves
D. ultraviolet waves

QUESTION 29
A certain type of radiation penetrates solid material and concrete walls. To be able to see the contents of a transport truck, without going inside, this type of electromagnetic radiation is used …

___________________________________

QUESTION 30
Doctors use MRI machines (magnetic resonance imaging) to create pictures of the tissues inside the human body. The MRI machine uses these types of electromagnetic waves to produce images …
A. X-rays
B. microwaves
C. radio waves
D. infrared waves

QUESTION 31
Thomas Edison invented the light bulb in the late 1800’s. The bulbs didn’t last very long because he used what as a filament?

____________________________________

QUESTION 32
Phosphorescence is slightly different from fluorescence. In phosphorescence, the energy that is used to produce the light is absorbed by the material and then given off later. These types of materials …
A. glow in the dark
B. become natural light
C. last longer than fluorescent light
D. produce light and give off lots of heat

QUESTION 33
Incandescent light bulbs produce 95% heat and only 5% visible light. Fluorescent light bulbs are much more efficient, because they produce 80% heat and 4 times as much light. The biggest problem with the florescent lights is their disposal into the environment because of this harmful vapour …

____________________________________

QUESTION 34
A television set puts the theory of color addition into practice. If you look closely at the screen, you will see that it is actually made up of rows of …
A. red, blue and yellow dots
B. red, blue and yellow squares
C. blue, green and red dots
D. blue, green and red squares

QUESTION 35
The retina in the eye has a thin layer of cells that are light sensitive. These cells are called photoreceptors. There are two kinds of photoreceptor cells. The type of photoreceptor cell in the retina that detect color are called …

__________________________________________

QUESTION 36
Night vision goggles are used to get images in the dark. A green image is formed on the screen because light makes phosphor particles …

____________________________

"Light and Optical Systems"
QUESTION 37
The human eye and most other vertebrates have eyes that can be compared to cameras and are called camera eyes. Fish also have camera eyes, but instead of an oval-shaped lens, they have a ...

A. magnifier
B. mirror
C. filter
D. lens

QUESTION 38
Nocturnal animals, such as cats and owls have very large pupils to allow them to collect as much light as possible. The purpose of the thin layer inside their eyes, called the tapetum lucidum, is to act as this inside their eye – a ...

A. magnifier
B. mirror
C. filter
D. lens

QUESTION 39
An ommatidia is a long tube-like structure with a lens on the outer surface, a focusing cone below it and a light sensitive cell below that. Insect eyes have ommatidia facing in almost all directions because their eyes tend to have a ...

A. flat shape
B. round shape
C. convex surface
D. concave surface

QUESTION 40
One drawback of the compound eye is that it has difficulty focusing a single, coherent sharp image. This is because of its ...

A. oval shape
B. round shape
C. multiple lenses
D. 'mosaic' appearance

QUESTION 41
Digital information is stored by a computer converting the information into ...

QUESTION 42
The eye and the camera can be thought of as image-producing technologies. One (the eye) happens to be a natural technology, while the other (the camera) is a ...

A. film revolution
B. photo advancement
C. artificial technology
D. mechanical innovation

QUESTION 43
The process of creating a big picture, or a message, out of smaller pictures, or colored tiles, is similar to the process of digital imaging. The small elements that make up a picture, or a stadium image, are called pixels. The more pixels that make up a picture, the higher the ...

A. restoration
B. resolution
C. retention
D. resolve

QUESTION 44
The greatest advantage to digital imaging is that the pictures don't have to be ...

A. translated
B. recovered
C. processed
D. transmitted

QUESTION 45
A digital image can also capture different parts of the electromagnetic spectrum, enabling scientists and other observers to learn more about things that appear to be invisible. The different colors that are captured in a thermogram image show scientists and observers this part of the electromagnetic spectrum ...

A. X-ray
B. infrared
C. ultraviolet
D. microwave

SCIENTIFIC ILLUSTRATION 1
Label the optical parts of the binoculars:

A  B  C

SCIENTIFIC ILLUSTRATION 2
Identify the parts of the microscope:

2.  
6.  
9.  
10.  
14.  
Ray Diagram 1
Illustrate a ray diagram showing how light travels when it hits a mirror.

Ray Diagram 2
Illustrate a ray diagram showing how light (2 beams) from a ray box travels when going through a double convex lens.

Bonus

Explain fully the LAW of LIGHT this ray diagram illustrates