

12th Science Lesson 1 Questions in English

1] Recent developments in Physics

1. Which of the following statement is correct?

- 1) Nanoscience is the study of structure and materials of 10^{-19} m scale
- 2) The mechanical, electrical and optical properties of such size materials vary from their original size.
 - a) 1 alone
 - b) 2 alone**
 - c) 1, 2
 - d) None

Explanation

Nanoscience

Nanoscience is the study of structures and materials on the scale of nanometers. Nano means one-billionth of a meter that is 10^{-9} m.

If matter is divided into such small objects the mechanical, electrical, optical, magnetic and other properties change.

2. Which of the following are included in Nanotechnology?

- 1) Design
- 2) Production
- 3) Characterization
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above**

Explanation

Nanotechnology

Nanotechnology is a technology involving the design, production, characterization, and applications of nano structured materials.

3. Which of the following statement is correct?

- 1) If a particle of a solid is of size less than 100nm, it is said to be a nano solid
- 2) ZnS can be in both bulk and Solid form
- 3) When the particle size is exceeds more than 100nm, it is called as bulk solid
 - a) 1, 2
 - b) 1, 3**
 - c) 2, 3
 - d) All the above

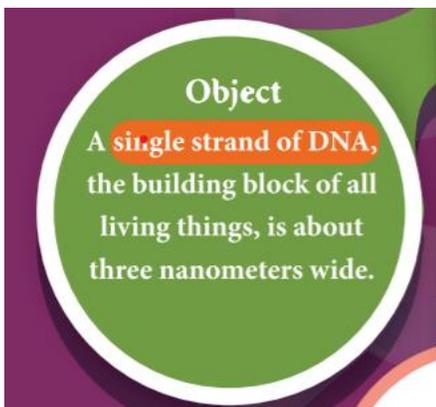
Explanation

The solids are made up of particles. Each of the particle has a definite number of atoms, which might differ from material to material. If the particle of a solid is of size less than 100 nm, it is said to be a 'nano solid'. When the particle size exceeds 100 nm, it is a 'bulk solid'. It is to be noted that nano and bulk solids may be of the same chemical composition. For example, ZnO can be both in bulk and nano form. Though chemical composition is the same, nano form of the material shows strikingly different properties when compared to its bulk counterpart.

4. What is the width of single strand DNA?

- a) **Three nanometres**
- b) Four nanometres
- c) One nanometre
- d) Five nanometres

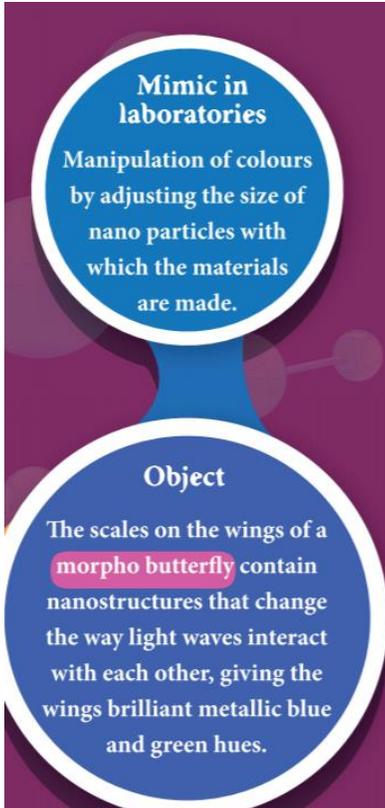
Explanation



5. Which of the following statement is correct?

- 1) Manipulation of colours can be done by adjusting the size of the nanoparticles in the material
 - 2) The scales on the wings of the morpho butterfly contains nanostructures that can change the way light waves interact with each other and gives intelligent metallic blue and green hues
- a) 1 alone
 - b) 2 alone
 - c) **1, 2**
 - d) None

Explanation



6. Which of the following statement about parrot fish is correct?

- 1) It feeds on coral
 - 2) It is only green in colour
 - 3) The powerful bite of parrot fish is due to interwoven fibre nanostructure
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

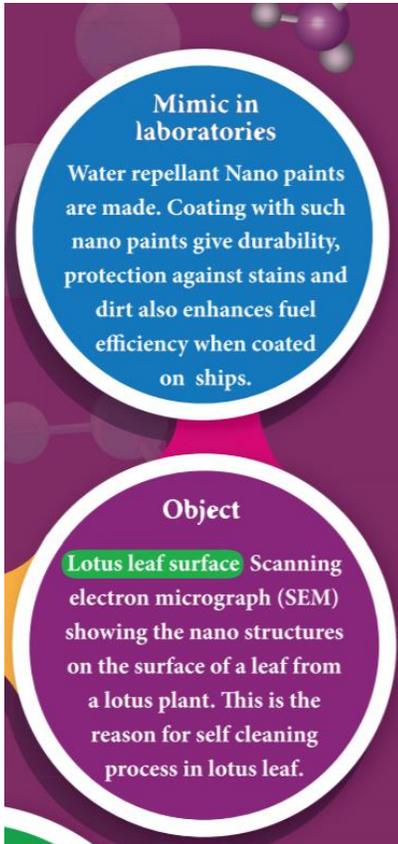
Explanation



7. Which of the following statement is correct?

- 1) Water repellent nano paints are made based on lotus leaf structures
 - 2) Nano structures in lotus leaf on surface is the reason for its self- cleaning process
- a) 1 alone
 - b) 2 alone
 - c) **1, 2**
 - d) None

Explanation



8. When was the 2D material isolated and characterized by Andre Geim and Konstantin Novoselov?

- a) 1994
- b) **2004**
- c) 2014
- d) 2020

Explanation

2004

2D material was isolated and characterized in 2004 by Andre Geim and Konstantin Novoselov at the University of Manchester. This work won the Nobel Prize in Physics in 2010.

9. Who developed Scanning tunnelling microscope?

- 1) Gerd Binning
- 2) Konstantin Novoselvo
- 3) Heinrich Rohrer
 - a) 1, 2
 - b) 1, 3**
 - c) 2, 3
 - d) All the above

Explanation

1981

Gerd Binning and Heinrich Rohrer developed the scanning tunnelling microscope (STM), that modern nanotechnology began. The STM allowed researchers to view atoms on the surface of materials for the first time ever, and since then nanotechnology began its gradual growth.

10. Who coined the term nanotechnology?

- a) Gerd Binning
- b) Konstantin Novoselvo
- c) Heinrich Rohrer
- d) Norio Taniguchi**

Explanation

1974

While working on the development of ultra-precision machines, Professor Norio Taniguchi coined the term nanotechnology.

11. How many xenon atoms were manipulated to spell out IBM logo?

- a) 32
- b) **35**
- c) 45
- d) 25

Explanation

1989

Don Eigler and Erhard Schweizer at IBM's Almaden Research Center manipulated 35 individual xenon atoms to spell out the IBM logo. This demonstration of the ability to precisely manipulate atoms ushered in the applied use of nanotechnology.

12. How many ways are there for preparing nanomaterials?

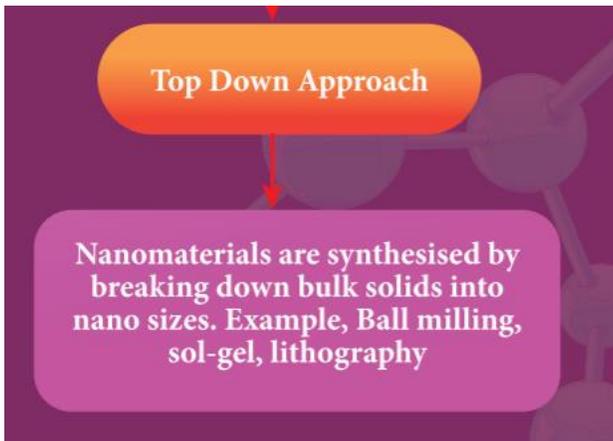
- a) 4
- b) 3
- c) **2**
- d) 1

Explanation

The nanostructures made in the laboratory mimic some of nature's amazing nanostructures. As the nanostructures are so small, specialized methods are needed to manufacture objects in this size range. There are two ways of preparing the nanomaterials, top down and bottom up approaches.

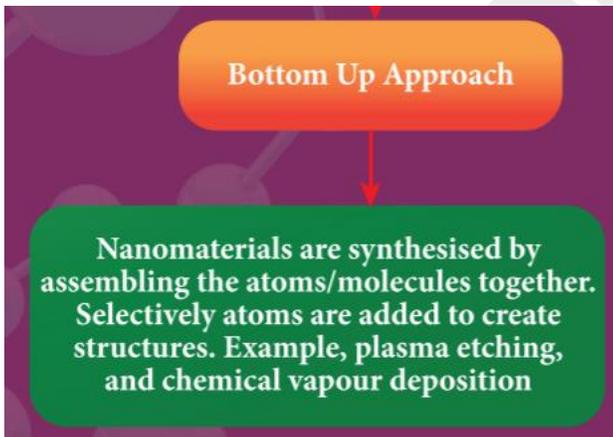
13. Which of the following is not a method of top-down approach for preparing nanomaterials?

- a) Ball milling
- b) Sol-gel
- c) **Plasma etching**
- d) Lithography

Explanation

14. Which of the following are bottom-up approach of producing nanomaterials?

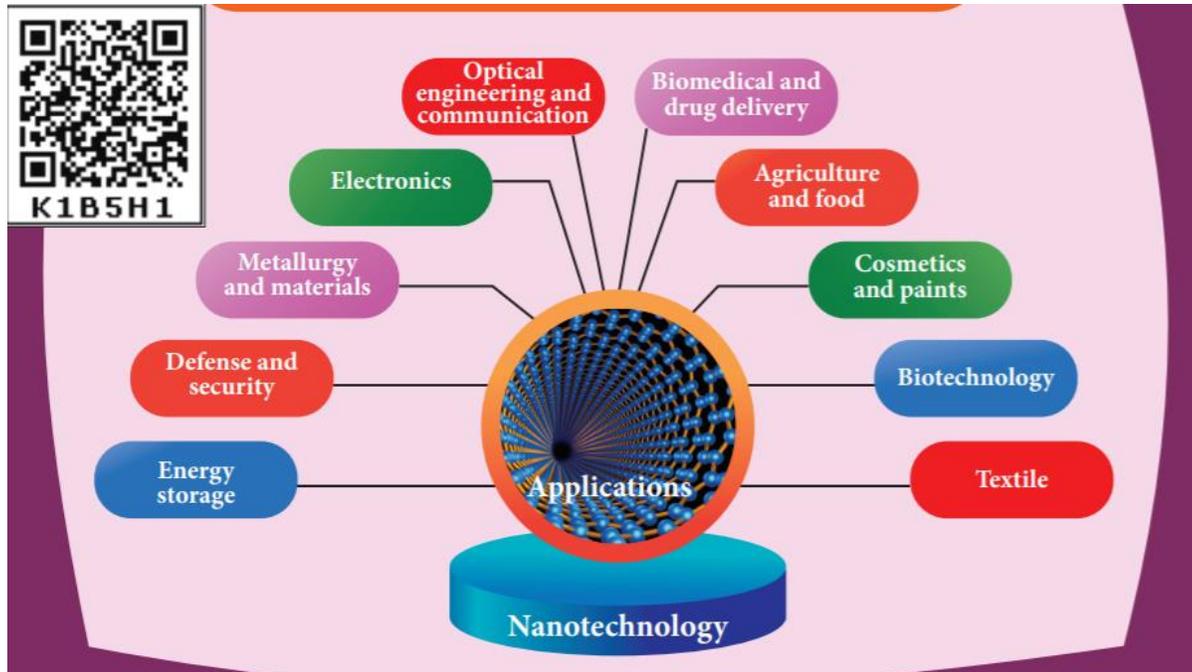
- 1) Chemical vapour deposition
 - 2) Sol-gel
 - 3) Plasma etching
- a) 1, 2
 - b) 1, 3**
 - c) 2, 3
 - d) All the above

Explanation

15. Which of the following are applications of Nano-technology?

- 1) Electronics
 - 2) Defence and security
 - 3) Textile
 - 4) Drug delivery
- a) 1, 2, 3
 - b) 1, 3, 4
 - c) 2, 3, 4
 - d) All the above**

Explanation



16. Which of the following statement is correct?

- 1) The research on the harmful impact of application of nanotechnology is also equally important and fast developing.
 - 2) The major concern here is that the nanoparticles have the dimensions same as that of the biological molecules such as proteins
 - 3) They may easily get absorbed onto the surface of living organisms and they might enter the tissues and fluids of the body.
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

The **research on the harmful impact of application of nanotechnology is also equally important and fast developing**. The major concern here is that the **nanoparticles have the dimensions same as that of the biological molecules such as proteins**. They **may easily get absorbed onto the surface of living organisms** and they might enter the tissues and fluids of the body.

17. Which of the following statement is correct?

- 1) The adsorbing nature depends on the surface of the nanoparticle
 - 2) The interaction with living systems is not affected by the dimensions of the nanoparticles
 - 3) It is possible to deliver a drug directly to a specific cell in the body by designing the surface of a nanoparticle so that it adsorbs specifically onto the surface of the target cell
- a) 1, 2
 - b) **1, 3**
 - c) 2, 3
 - d) All the above

Explanation

The adsorbing nature depends on the surface of the nanoparticle. Indeed, it is possible to deliver a drug directly to a specific cell in the body by designing the surface of a nanoparticle so that it adsorbs specifically onto the surface of the target cell. **The interaction with living systems is also affected by the dimensions of the nanoparticles.** For instance, nanoparticles of a few nano-meters size may reach well inside biomolecules, which is not possible for larger nanoparticles.

18. Assertion(A): It is also possible for the inhaled nanoparticles to reach the blood, to reach other sites such as the liver, heart or blood cells

Reason(R): Nanoparticles can also cross cell membranes

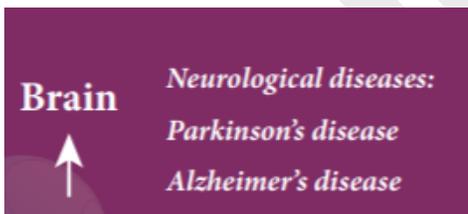
- a) Both (A) and (R) are correct, but (R) does not explain (A)
- b) Both (A) and (R) are wrong
- c) **Both (A) and (R) are correct and (R) explains (A)**
- d) (A) is Correct and (R) is wrong

Explanation

Nanoparticles can also cross cell membranes. It is also possible for the inhaled nanoparticles to reach the blood, to reach other sites such as the liver, heart or blood cells. Researchers are trying to understand the response of living organisms to the presence of nanoparticles of varying size, shape, chemical composition and surface characteristics.

19. Which of the following is not a neurological disease?

- a) **Emphysema**
- b) Parkinson's disease
- c) Alzheimer's disease
- d) All the above

Explanation

20. Robotics is an integrated study of_____

- 1) Mechanical engineering
- 2) Electronics engineering
- 3) Computer engineering
- a) 1, 2
- b) 1, 3
- c) 2, 3
- d) **All the above**

Explanation

Robotics is an integrated study of mechanical engineering, electronic engineering, computer engineering, and science.

21. Which of the following statement is correct?

- 1) Robot is a mechanical device designed with electronic circuitry and programmed to perform a specific task.
- 2) They can take up the role of humans in certain dangerous environments that are hazardous to people like defusing bombs, finding survivors in unstable ruins
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) None

Explanation

Robot is a **mechanical device designed with electronic circuitry and programmed to perform a specific task**. These automated machines are highly significant in this robotic era. They can take up the role of humans in certain dangerous environments that are hazardous to people like **defusing bombs, finding survivors in unstable ruins, and exploring mines and shipwrecks**.

22. When was the 1st digitally operated programmable robot operated?

- a) 1994
- b) **1954**
- c) 1999
- d) 1956

Explanation

In 1954, George Devol invented the 1st digitally operated programmable robot called Unimate. George Devol and Joseph Engelberger, the father of the modern robotics industry formed the world's 1st robot company in 1956. In 1961, Unimate, was operated in a General Motors automobile factory for moving car parts around in New Jersey.

23. Which of the following statement is correct?

- 1) The robotic system mainly consists of sensors, power supplies, control systems, manipulators and necessary software
- 2) Sensor is the brain of the computer
- 3) The Controller gives commands for the moving parts to perform the job
 - a) 1, 2
 - b) **1, 3**
 - c) 2, 3
 - d) All the above

Explanation

The robotic system mainly consists of sensors, power supplies, control systems, manipulators and necessary software. Most robots are composed of 3 main parts:

- **The Controller - also known as the "brain" which is run by a computer program.** It gives commands for the moving parts to perform the job.
- Mechanical parts - motors, pistons, grippers, wheels, and gears that make the robot move, grab, turn, and lift.
- Sensors - to tell the robot about its surroundings. It helps to determine the sizes and shapes of the objects around, distance between the objects, and directions as well

24. Which of the following human activities can be replicated by robots?

- 1) Walking
- 2) Lifting
- 3) Sensing
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Certain robots are made to resemble humans in appearance and replicate the human activities like **walking, lifting, and sensing**, etc.

25. Which of the following motors can be used in Robots?

- 1) Brushless motor
- 2) Geared DC motor
- 3) AC motor
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Electric motors are used to actuate the parts of the robots like wheels, arms, fingers, legs, sensors, camera, weapon systems etc. Different types of electric motors are used. The most often used ones are **AC motor, Brushed DC motor, Brushless DC motor, Geared DC motor**, etc.

26. How much % does pneumatic air muscles contract when air is sucked inside them?

- a) 100
- b) **40**
- c) 60
- d) 26

Explanation

Pneumatic Air Muscles are devices that can contract and expand when air is pumped inside. It can replicate the function of a human muscle. They contract almost 40% when the air is sucked inside them.

27. Which of the following works can be brought down by AI?

- 1) Face recognition
- 2) Translate words from one language to another
- 3) Taking decisions based on previous actions
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

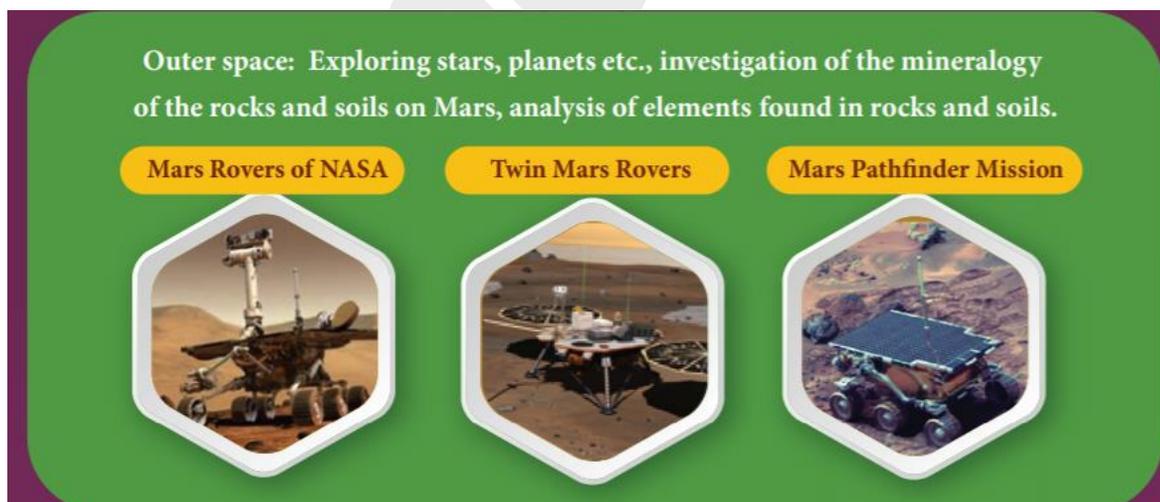
Explanation

The aim of artificial intelligence is to bring in human like behaviour in robots. It works on

- Face recognition
- Providing response to player's actions in computer games
- Taking decisions based on previous actions
- To regulate the traffic by analysing the density of traffic on roads.
- Translate words from one language to another

28. Which of the following are the applications of Robots?

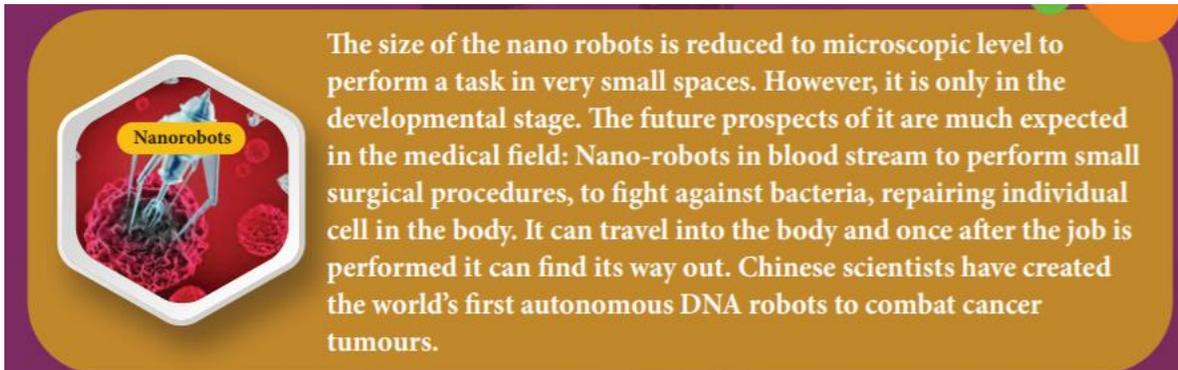
- 1) Exploring stars
- 2) Investigation of minerology of rocks and soils on mars
- 3) Analysis of elements found in rock and soils
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

29. Which of the following statement is correct?

- 1) The size of the nano robots is reduced to microscopic level to perform a task in very small spaces.
- 2) Chinese scientists have created the world's 1st autonomous DNA robots to combat cancer tumours.

- 3) Nano-robots in blood stream to perform small surgical procedures, to fight against bacteria, repairing individual cell in the body is the future prospect in medicinal field.
- 1, 2
 - 1, 3
 - 2, 3
 - All the above**

Explanation

30. Which of the following metals are most commonly used in robots?

- Aluminium
 - Silver
 - Steel
- 1, 2
 - 1, 3**
 - 2, 3
 - All the above

Explanation

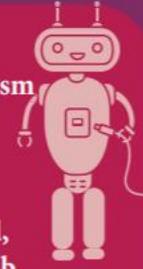
For robots, aluminium and steel are the most common metals. Aluminium is a softer metal and is therefore easier to work with, but steel is several times stronger. In any case, because of the inherent strength of metal, robot bodies are made using sheet, bar, rod, channel, and other shapes.

31. Which of the following are the advantages of robotics?

- The robots are much cheaper than humans
 - In warfare, robots can save human lives
 - Robots can work in extreme environmental conditions
 - Robots are more precise and error free in performing the task
- 1, 2, 4
 - 1, 3, 4
 - 2, 3, 4
 - All the above**

Explanation

1. The robots are much cheaper than humans.
2. Robots never get tired like humans. It can work for 24 x 7. Hence absenteeism in work place can be reduced.
3. Robots are more precise and error free in performing the task.
4. Stronger and faster than humans.
5. Robots can work in extreme environmental conditions: extreme hot or cold, space or underwater. In dangerous situations like bomb detection and bomb deactivation.
6. In warfare, robots can save human lives.
7. Robots are significantly used in handling materials in chemical industries especially in nuclear plants which can lead to health hazards in humans.

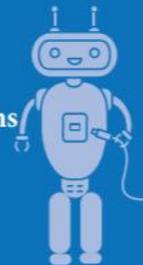


32. Which of the following statement is correct?

- 1) Robots have no sense of emotions or conscience
- 2) They have empathy and hence create an emotionless workplace
- 3) Humans cannot be replaced by robots in decision making
 - a) 1, 2
 - b) 1, 3**
 - c) 2, 3
 - d) All the above

Explanation

1. Robots have no sense of emotions or conscience.
2. They lack empathy and hence create an emotionless workplace.
3. If ultimately robots would do all the work, and the humans will just sit and monitor them, health hazards will increase rapidly.
4. Unemployment problem will increase.
5. Robots can perform defined tasks and cannot handle unexpected situations
6. The robots are well programmed to do a job and if a small thing goes wrong it ends up in a big loss to the company.
7. If a robot malfunctions, it takes time to identify the problem, rectify it, and even reprogram if necessary. This process requires significant time.
8. Humans cannot be replaced by robots in decision making.
9. Till the robot reaches the level of human intelligence, the humans in work place will exit.



33. Which of the following statement is incorrect?

- 1) Medical science very much revolves around physics principles.
- 2) Medical instrumentation has widened the life span due to the technology integrated diagnosis and treatment of most of the diseases
 - a) 1 alone
 - b) 2 alone**

- c) 1, 2
- d) **None**

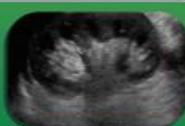
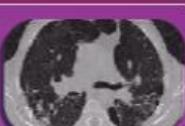
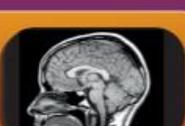
Explanation

Medical science very much revolves around physics principles. Medical instrumentation has widened the life span due to the technology integrated diagnosis and treatment of most of the diseases. This modernisation in all elds is possible due to efficient application of fundamental physics.

34. Match the following

- | | |
|--------------------------------|----------------------------|
| I. X-rays | 1. MRI |
| II. Theory of Radioactivity | 2. Radiology X-ray imaging |
| III. Artificial Radioactivity | 3. Nuclear Medicine |
| IV. Nuclear Magnetic Resonance | 4. Scintigraphy |
-
- a) 3, 1, 2, 4
 - b) 1, 2, 4, 3
 - c) **2, 3, 4, 1**
 - d) 2, 4, 3, 1

Explanation

	Inventors	Used in	
1	1895 X-rays (Wilhelm Conrad-Röntgen)	Radiology-Xray imaging	
2	1896 and 1898 Theory of Radioactivity (Antonie Henri Becquerel, Pierre Curie and Marie Cuire)	Radioisotope imaging Nuclear Medicine	
3	1934 Artificial Radioactivity (Joliot and Irene Curie)	Scintigraphy	
4	1950 Echography & Sonography	Ecography	
5	1979 X-ray computed tomography (Cormack and Hounsfield)	Computed Tomography (CT)	
6	1952 Nuclear Magnetic Resonance (NMR) (Felix Bloch and Edward Purcell)	Magnetic Resonance Imaging (MRI)	

35. Match the following

- | | |
|-----------------------|------------------------------|
| I. LASER | 1. Drug delivery |
| II. DSCT | 2. Surgical instrument |
| III. Nuclear medicine | 3. CT |
| IV. Nanotechnology | 4. Fusion imaging techniques |
- a) 2, 1, 3, 4
 b) 2, 3, 4, 1
 c) 4, 1, 2, 3
 d) 3, 1, 2, 4

Explanation

7	1934	Artificial Radioactivity (Joliot and Irene Curie)	Positron Emission Tomography	
8	1940's	Optical fibre	Endoscopy, Biomedical sensors	
9	1960	LASER	Surgical instrument and diagnosis tool	
10	1959	Nanotechnology	Nanomedicine Drug delivery	
11	2005	Dual Source Computed Tomography (DSCT)	Computed Tomography (CT)	
12	1998	Nuclear medicine (David Townsend, Ronald Nutt)	Fusion Imaging Techniques (PET-CT, PET-MR)	

36. Which of the following statement is correct?

- 1) Medical virtual reality is effectively used to stop the brain from processing pain and cure soreness in the hospitalized patients
 - 2) It helps in the treatment of Autism, Memory loss, and Mental illness
- a) 1 alone

- b) 2 alone
- c) **1, 2**
- d) None

Explanation

Medical virtual reality is effectively used to **stop the brain from processing pain and cure soreness** in the hospitalized patients. Virtual reality has enhanced surgeries by the use of 3D models by surgeons to plan operations. It helps in the **treatment of Autism, Memory loss, and Mental illness**.

37. Which of the following customised using precision medicine?

- 1) Healthcare
 - 2) Practises
 - 3) Medical decisions
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Precision medicine is an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person. In this medical model it is possible to **customise healthcare, with medical decisions, treatments, practices, or products which are tailored to the individual patient**.

38. Which of the following statement is incorrect?

- 1) A health wearable is a device used for tracking a wearer's vital signs or health and fitness related data, location, etc.
 - 2) Medical wearables with artificial intelligence and big data provide an added value to healthcare with a focus on diagnosis, treatment, patient monitoring and prevention.
- a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) **None**

Explanation

A health wearable is a device used for tracking a **wearer's vital signs or health and fitness related data**, location, etc. Medical wearables with artificial intelligence and big data provide an added value to healthcare with a focus on diagnosis, treatment, patient monitoring and prevention.

39. Which of the following statement is correct?

- 1) An artificial organ is an engineered device or tissue that is implanted or integrated into a human.
 - 2) It duplicates or augments a specific function or functions of human organs so that the patient may return to a normal life
- a) 1 alone
 - b) 2 alone

- c) 1, 2
- d) None

Explanation

An **artificial organ is an engineered device or tissue that is implanted or integrated** into a human. It is possible to interface it with living tissue or to replace a natural organ. It **duplicates or augments a specific function or functions of human organs** so that the patient may return to a normal life as soon as possible.

40. In which of the following medicinal filed 3D printing is used?

- 1) Audiology
 - 2) Dentistry
 - 3) Orthopaedics
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Advanced 3D printer systems and materials assist physicians in a range of operations in the medical eld from **audiology, dentistry, orthopaedics** and other applications.

41. Which of the following can be monitored using wireless brain sensor?

- 1) Intracranial pressure
 - 2) Temperature
 - 3) Nerve signal
- a) **1, 2**
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

Wireless brain sensors monitor intracranial pressure and temperature and then are absorbed by the body. Hence there is no need for surgery to remove these devices.

42. Which of the following statement about smart inhalers is correct?

- 1) Inhalers are the main treatment option for asthma
 - 2) Smart inhalers are designed with health systems and patients in mind so that they can oer maximum benefit
 - 3) Smart inhalers use blue-tooth technology to detect inhaler use, remind patients when to take their medication
- a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Inhalers are the main treatment option for asthma. Smart inhalers are designed with health systems and patients in mind so that they can offer maximum benefit. **Smart inhalers use blue-tooth technology to detect inhaler use**, remind patients when to take their medication and gather data to help guide care.

43. Which of the following statement is correct?

- 1) Particle physics deals with the theory of fundamental particles of nature and it is one of the active research areas in physics.
- 2) In 1930s, it was established that atoms are made up of electrons and protons
 - a) 1 alone
 - b) 2 alone
 - c) 1, 2
 - d) None

Explanation

Particle physics deals with the theory of fundamental particles of nature and it is one of the active research areas in physics. Initially it was thought that atom is the fundamental entity of matter. In 1930s, it was established that **atoms are made up of electrons, protons and neutrons**.

44. Which of the following are made up of quarks?

- 1) Electron
- 2) Proton
- 3) Neutron
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

In the 1960s, **quarks were discovered and it was understood that proton and neutron are made up of quarks**. In the meantime, the particle physics research gained momentum and has grown exponentially both in theoretical and experimental perspective. Later it was found that the quarks interact through gluons. It is the field which received more numbers of noble prizes.

45. When was God Particle discovered?

- a) 2011
- b) **2013**
- c) 2015
- d) 2010

Explanation

Recently in the **year 2013, famous 'Higgs particles' also known as "God" particles were discovered** and for this, Peter Higgs and Englert received noble prize in physics. It is the 'Higgs particle' which gives mass to many particles like protons, neutrons etc.

46. When was the existence of gravitational waves discovered?

- a) 1990
- b) 1991
- c) 2017
- d) **2015**

Explanation

Cosmology is the branch that involves the origin and evolution of the universe. It deals with formation of stars, galaxy etc. In **the year 2015, the existence of "gravitational waves" was discovered** and noble prize was awarded for this discovery in the year 2017.

47. Which of the following statement about gravitational waves is correct?

- 1) Gravitational waves are the disturbances in the curvature of space-time and it travels with speed of light
 - 2) Any accelerated mass emits gravitational waves
 - 3) These waves are very strong even for masses like earth
- a) **1, 2**
 - b) 1, 3
 - c) 2, 3
 - d) All the above

Explanation

Gravitational waves are the disturbances in the curvature of space-time and it travels with speed of light. Any accelerated charge emits electromagnetic wave. Similarly, any accelerated mass emits gravitational waves but **these waves are very weak even for masses like earth.**

48. The strongest source of gravitational waves are_____

- a) Sun
- b) Galaxies
- c) **Black holes**
- d) Stars

Explanation

The **strongest source of gravitational waves are black holes.** The discovery of gravitational waves made it possible to study the structure of black holes since it is the strongest source of gravitational waves

49. Who theoretically proposed the existence of gravitational waves?

- a) Newton
- b) **Einstein**
- c) Tesla
- d) Edison

Explanation

In fact, the recent discoveries of gravitational waves are emitted by two black holes when they merge to a single black hole. In fact, **Albert Einstein theoretically proposed the existence of**

'**gravitational waves**' in the year 1915. A-er 100 years, it is experimentally proved that his predictions are correct.

50. Which of the following statement about blackholes is correct?

- 1) Black holes are end stage of stars which are highly dense massive object.
- 2) Every galaxy has black hole at its centre
- 3) Sagittarius A* is the black hole at the centre of the Milky Way galaxy.
 - a) 1, 2
 - b) 1, 3
 - c) 2, 3
 - d) **All the above**

Explanation

Black holes are end stage of stars which are highly dense massive object. Every galaxy has black hole at its centre. **Sagittarius A* is the black hole at the centre of the Milky Way galaxy.**

51. Which of the following statement about blackholes is correct?

- 1) Its mass ranges from 20 times mass of the sun to 1 million times mass of the sun
- 2) It has very strong gravitational force such that no particle or even light can escape from it.
 - a) 1 alone
 - b) 2 alone
 - c) **1, 2**
 - d) None

Explanation

Black holes mass ranges from **20 times mass of the sun to 1 million times mass of the sun**. It has very strong gravitational force such that no particle or even light can escape from it. e existence of black holes is studied when the stars orbiting the black hole behave differently from the other stars.

52. How telescopes were stationed to photograph the Black hole M87?

- a) 10
- b) 9
- c) **8**
- d) 5

Explanation



Actual photograph of a super massive black hole M87*

Super computers and eight telescopes stationed on five continents (EVENT HORIZON TELESCOPE) were used to develop a huge data to accomplish this. It has once again confirmed the Einstein's theory of general relativity.