Ravi home tutions

12th Standard

Physics

Total Marks: 215

Multiple Choice Question 37 x 1 = 37

Q1.The particle size of ZnO material is 30 nm. Based on the dimension it is classified as _____.

(a) Bulk material (b) Nanomaterial (c) Soft material

(d) Magnetic material

Q2.Which one of the following is the natural nanomaterial.

(a) Peacock feather (b) Peacock beak (c) Grain of sand

(d) Skin of the Whale

Q3.The blue print for making ultra durable synthetic material is mimicked from _____.

(a) Lotus leaf (b) Morpho butterfly (c) Parrot fish

(d) Peacock feather

Q4.The method of making nanomaterial by assembling the atoms is called _____.

(a) Top down approach (b) Bottom up approach

(c) Cross down approach (d) Diagonal approach

Q5."Sky wax" is an application of nano product in the field of _____.

(a) Medicine (b) Textile (c) Sports (d) Automotive industry

Q6.The materials used in Robotics are _____.

(a) Aluminium and silver (b) Silver and gold (c) Copper and gold

(d) Steel and aluminum

Q7.The alloys used for muscle wires in Robots are _____.

(a) Shape memory alloys (b) Gold copper alloys

(c) Gold silver alloys (d) Two dimensional alloys

Q8.The technology used for stopping the brain from processing pain is _____.

(a) Precision medicine (b) Wireless brain sensor (c) Virtual reality

(d) Radiology

Q9.The particle which gives mass to protons and neutrons are _____.

(a) Higgs particle (b) Einstein particle (c) Nanoparticle

(d) Bulk particle

Q10.The gravitational waves were theoretically proposed by _____.

(a) Conrad Rontgen (b) Marie Curie (c) Albert Einstein
(d) Edward Purcell

Q11.Nanoscience is the science of object with typical sizes of _____

(a) 1 - 100 μ (b) 1 - 100 nm (c) 1 - 100 cm (d) 1- 100 m

Q12.If the particle of a solid is of size less than 100 nm, it is said to be a _____

(a) Nano particle (b) Nano bytes (c) Nano solid
(d) Nano technology

Q13._____ Scanning Electron Micrograph (SEM) showing the nano structures on the surface of a leaf from a lotus plant

(a) Parrot fish (b) Morpho butterfly (c) Lotus leaf surface
(d) Peacock feathers

Q14._____ is synthesized top down approach

(a) Ball milling (b) Plasma etching (c) lithography
(d) Ball milling and lithography

Q15.Best example for applications of nanotechnology is _____.

(a) Chemical industry (b) Engineering (c) medicine
(d) all of these

Q16.George Devel invented the first digitally operated programmable robot called _____.

(a) Unimate (b) Robotics (c) Motors (d) Generators

Q17.Muscle wires can contract by _____ when electric current is passed through them.

(a) 5% (b) 7% (c) 25% (d) 50%

Q18.The size of the Nano robots is reduced to _____ level to perform a task in very small space.

(a) Macroscopic (b) Robots DNA (c) Microscopic (d) Bacteria

Q19.Chinese scientists have created the world's first autonomous _____ to combat caner tumours.

(a) RNA Robot (b) DNA Robot (c) m RNA Robot (d) r RNA Robot

Q20.In _____ it was established that atoms are made up of electrons, protons and neutrons

(a) 1945 (b) 1923 (c) 1930 (d) 1927

Q21.Zno is an example of _____

(a) Bulk solid (b) Nano solid (c) Bulk solid and Nano solid

(d) None of the above

Q22.A single strand of DNA, the building block of all living things, is about _____ nanometers wide.

(a) Two (b) Three (c) Four (d) Five

Q23.Bulk particles of nanoparticles are synthesized by _____

(a) Top - down approach (b) Bottom - up approach

(c) Top - top approach (d) Bottom - real approach

Q24.Plasma etching and chemical vapour deposition are synthesized by _____

(a) Bottom - up approach (b) Top - down approach

(c) Bottom - down approach (d) Top - up approach

Q25.Which of the property does not change when a matter is divided into nano Particle?

(a) Electrical (b) Chemical (c) Magnetic (d) Optical

Q26.Natural object for the mimic of water-repellant paint is _____.

(a) Parrotfish (b) lotus leaf surface (c) Peacock feather

(d) the scales of the wings of a morph butterfly

Q27.The function of actuators in robots is _____.

(a) sensing (b) conversion of energy into movement

(c) contractlon (d) conducting current

Q28._____ helps in the treatment of Autism.

(a) Precision medicine (b) Artificial organ

(c) Wireless brain sensors (d) Medical virtual reality

Q29.Higgs particle is responsible for the _____ of particles like protons.

(a) charge (b) spin (c) mass (d) energy

Q30.Any accelerated _____emits a gravitational wave.

(a) mass (b) charge (c) nano Particle (d) proton

Q31.Black holes are the end stage of stars whose mass ranges from _____ the mass of the sun.

(a) 20 to 2000 times (b) 200 to 10000 times

(c) 20 to 1 million times (d) 20 to 100000 times

Q32.The black hole which is at the center of milky way is _____.

(a) Jupiter- g (b) Sagittarius A (c) Apollo-G (d) Tirus - D

Q33.The adsorbing nature of the nano particles depends on the _____of the nano particles.

(a) mass (b) thickness (c) surface (d) hardness

Q34.The strongest source of gravitational Waves are

(a) black hole (b) accelerated mass (c) god parricles

(d) all the above

Q35.The relation between focal length and radius of curvature in spherical mirror is

(a) f = $\frac{R}{2}$ (b) f = 2R (c) $f = \frac{R}{\sqrt{2}}$ (d) $f = \sqrt{R}$

Q36.The relation between half - life and decay constant is _____

(a) $T_{1/2} = \frac{\sqrt{2}}{\pi}$ (b) $T_{1/2} = \sqrt{2}\lambda$ (c) $T_{1/2} = \frac{0.6931}{\lambda}$ (d) $T_{1/2} = 0.6931\lambda$

Q37.The relation between focal length and radius of curvature in spherical mirror is

(a) f = $\frac{R}{2}$ (b) f = 2R (c) $f = \frac{R}{\sqrt{2}}$ (d) $f = \sqrt{2}R$

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2 Marks 44 x 2 = 88

Q38.Distinguish between Nanoscience and Nanotechnology.

Q39.What is the difference between Nano materials and Bulk materials?

Q40.Give any two examples for “Nano” in nature.

Q41.Mention any two advantages and disadvantages of Robotics.

Q42.Why steel is preferred in making Robots?

Q43.What are black holes?

Q44.What are sub atomic particles?

Q45.What is nanotechnology?

Q46.What is the two important phenomena that govern the nano particles?

Q47.How does the peacock feathers get colouration?

Q48.How does the manipulation of colours obtain in nanoscale structure?

Q49.What is the role of nanostructure in the morpho butterfly wings?

Q50.What is the use of nano paints?

Q51.What kind of blueprint does the natural structure provide?

Q52.Who invented Unimate?

Q53.Write the use of robots in space?

Q54.What are the material used to make robots?

Q55.What are God particles?

Q56.What is Cosmology?

Q57.Write thekey components of robot.

Q58.What is the use of household robots?

Q59.What is the use of industrial robots?

Q60.Define nano science?

Q61.Define nano solid?

Q62.What is the two ways of preparing nano particle?

Q63.What is use of robotics?

Q64.State the applications of nano material in electronics industry.

Q65.Mention the applications of nano material in the field of medicine.

Q66.What is a robot?

Q67.What are the three main parts of a robot?

Q68.What do you mean by muscle wires?

Q69.Give the six main types of industrial robots.

Q70.What is the difference between human robots and industrial robots?

Q71.What is artificial intelligence?

Q72.What is virtual reality? How is it used in medical field?

Q73.What do you mean by precision medicine?

Q74.What is the role of health wearables in the treatment of disease?

Q75.Give the importance of wireless brain sensors.

Q76.What is robotic surgery?

Q77.How does smart inhalers differ from ordinary inhalers?

Q78.What are nucleons?

Q79.What are Higgs particles or God particles?

Q80.What are gravitational waves?

Q81.What is customer health care?

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3 Marks 13 x 3 = 39

Q82.Discuss the functions of key components in Robots?

Q83.Elaborate any two types of Robots with relevant examples.

Q84.Comment on the recent advancement in medical diagnosis and therapy.

Q85.Write the application of nano robots in medical field?

Q86.What is particle physics?

Q87.Write the two ways of preparing the nano materials.

Q88.Write the aim of artificial intelligence in robots.

Q89.What is robotics?

Q90.Write a note on Gravitational waves.

Q91.What are the approaches involved in synthesis of nano particle?

Q92.Write the application of Robots in outer space.

Q93.Do you believe that Robots will completely replace humans in work place? Justify your answer.

Q94.Mention some of the tasks that robots alone can do.

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5 Marks 7 x 5 = 35

Q95.Discuss the applications of Nanomaterials in various fields.

Q96.What are the possible harmful effects of usage of Nanoparticles? Why?

Q97.Write the advantages and disadvantages of robotic.

Q98.Explain the interdisciplinary nature of nanotechnology.

Q99.What are the disadvantages of Robotics?

Q100.Write the advantages of Robotics than the human.

Q101.Can we completely replace humans with robots?

Match the following 8 x 1 = 8

Q102.Peacock feathers

Q103.Single strand of DNA

Q104.Top down approach

Q105.Bottom up approach

Q106.Nano in nature

Q107.Fluorapatite

Q108.Self clearing process

Q109.First digitally operated programmable robot

Assertion and reason 2 x 2 = 4

Q110.**Assertion:** Muscle wires are thin strands of wire made of shape memory alloys.
Reason: They can contract by 5% when electric current is passed through them.
Codes:
(a) Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) Assertion and Reason are true but Reason is the false explanation of the Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is true.

Q111.**Assertion:** Black boles are highly dense massive objects.
Reason: Its mass ranges from 20 times the mass of the sun to 1 mission times the mass of the sun.
Codes:
(a) Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) Assertion and Reason are true but Reason is the false explanation of the Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is true.

Find out the wrong pair 1 x 2 = 2

Q112.
(a)	Piezo motors	Industrial robots
(b)	Nano solid	Less than 100 nm
(c)	Bulk soild	Exceeds 100 nm
(d)	Human Robot	Delta

Choose the Correct or Incorrect Statement 2 x 1 = 2

Q113.**Incorrect Statements**
(I) Every galaxy has black hole at its center.
(II) Cosmology deals with formation of stars.
(III) Higgs particles also known as God particles.
(IV) Robots are not powered by batteries

Q114.**Correct Statement:**
(I) The controller also known as the brain.
(II) George Devol invented the first digitally operated programmable robot.
(III) Ball milling is synthesized by bottom up approach.
(IV) Crystals of a mineral called fluorapatite
(a) I & II only

(b) II & III only
(c) III & IV only
(d) I, II, IV only