1. Panchayati Raj was first introduced in India in October1959 in the State of

1).Rajasthan 2).Karnataka 3).TamilNadu 4).Kerala

Ans:1

2. What is the fifth swara of Saragama?

1).Pa 2).Ga 3).Dha 4).Ma

Ans:1

The 7 fundamental notes

Carnatic Music is ruled by 7 octave musical notes. These Sapta Swaras are believed to have originated from "Dumru" *(Musical Instrument)* of Lord Shiva. 7 musical notes *(Swaras)* are the following: Sa , Ri , Ga , Ma, Pa, Da , Ni

https://www.raagaschool.com/sapta-swaras.html

4. KamaSutra (Atreatisseonsex) was written by-

1).Bharthruhari 2).Vatsyayana 3). Vaisampayana 4). Jayadev

Ans:2

5. What is a valley formed by earth's crust called?

1).Canon 2).Gorge 3).RiftValley 4).Plateau

Ans:3

6. Which of the following is not an official language of United Nations?

1).English 2).Chinese 3).Russian 4).French

Ans: All are official languages

. There are six official languages of the UN.

These are Arabic, Chinese, English, French,

Russian and Spanish.

7. Richter Scale maps the intensity of-

1). earthquake. 2). intensity of air. 3). depth of the sea. 4). heat of thebody.

Ans:1

8. A match head contains-

1). white phosphorus 2). Scarlet phosphorus

3). black phosphorus 4).Noneof these

Ans: 4

The head of safety matches are made of an **oxidizing agent such as potassium chlorate,**

mixed with sulfur, fillers and glass powder. The side of the box contains red phosphorus, binder and powdered glass
https://chem.washington.edu/lecture-demos/match-head-reaction#:~:text=The%20head%20of%20safety%20matches,phosphorus%2C%20binder%20and%20powdered%20glass.

11. It is easier to open a window by its handle than by pulling it near the hinges because –
1).force is more at that point 2). Energy is more over there
3).moment of the force is more 4). None of these
Ans:3

12. Hydraulic turbines are the machines which convert energy stored in water into-
1). Mechanical energy 2).Electrical energy
3). Solar energy 4). Automaticenergy

Ans: 2(Mechanical energy into electrical energy)

13. The upward force acting on the body immersed in a fluid is called …….
1). Viscosity 2).Buoyancy 3).Displacement 4).None of these

Ans:2

14.In S.I units, the basic unit of temperature is-
1).Celsius. 2).Kelvin. 3).Fahrenheit. 4).Reumer.

Ans:2

15. Duty of the canal water is expressed in-
1).cusec 2).Centimeters 3). Haper cumec 4).Noneof these
Ans:

17. What is normally called as black diamond?
1).BlackSalt 2).Coke 3).Coal 4).Graphite
Ans:3

18. Rainbow is a phenomenon caused by__of light.
1).Dispersion 2).Reflection
3).Refraction 4).Total internal Reflection
Ans: Reflection, refraction and dispersion of light (i.e., all are taking place).

A **rainbow** is a meteorological phenomenon that is caused by reflection, refraction and dispersion of light in water droplets resulting in a spectrum of light appearing in the sky. It takes the form of a multicoloured circular arc. Rainbows caused by sunlight always appear in the section of sky directly opposite the Sun.

https://en.wikipedia.org/wiki/Rainbow

21. The ratio of shear stress to shear strain is called as

1). Modulus of Elasticity
2). Modulus of rigidity
3). Modulus of Plasticity
4). Modulus of Permeability

Ans:2

22. The total number of electrical lines of force passing through a given area is called as:

1).Electrical induction
2).Electrical flux
3).Electric potential
4).Electric couple

Ans:2

31. The potential which is just sufficient to bring the photoelectric current to zero is called

1). photoelectric potential
2). Threshold potential
3). stopping potential
4).minimum potential

Ans:3

32. Infrared rays -

1). affect photographic plates
2). produce heat on bodies on which they fall
3). have ionizing power
4). have greater penetrating power than X-rays

Ans:2

Infrared waves, or infrared light, are part of the electromagnetic spectrum. A remote control uses light waves just beyond the visible spectrum of light—infrared light waves—to change channels on your TV. This region of the spectrum is divided into near-, mid-, and far-infrared. The region from 8 to 15 microns (μm) is referred to by Earth scientists as thermal

infrared since these wavelengths are best for studying the longwave thermal energy radiating from our planet. Herschel had discovered infrared light

https://science.nasa.gov/ems/07_infraredwaves

Characteristics of IR Rays

Given below are a few characteristics of infrared Radiation.
It has wavelength range from 710 mm to 1mm
Its frequency from:430 THz – 300 GHz
It is transverse wave
Its speed is 3×10^8 m/s, i.e., velocity of light

Thermal properties of infrared radiation include exhibiting of heat inducing property, etc.

33. The soil transported by wind is called –

1). Aeolian soil 2). Marine soil 3). Alluvial soil 4). Lacustrine soil
Ans:1

34. The angle made by a freely suspended needle with the horizontal plane is called –
1). Dip. 2). Declination. 3). Inclination. 4). Slope.
Ans:1

35.The internal circuits of a computer are capable of representing all information using two elementary symbols: 1 & 0.These symbols are called
1). MIPS 2). Bytes 3). Bits 4). None of these

Ans:3.

A bit is the smallest unit of computer information. It's essentially a single binary data point; either yes or no, on or off, up or down. A byte on the other hand is a unit of memory that usually contains 8 bits. This is because historically, 8 bits are needed to encode a single character of text.

36. Laughing gas is –

1). Nitrous oxide 2). Nitrogen dioxide 3). Carbon-di-oxide 4).Carbon monoxide

Ans:1. Nitrous oxide,NO.

(Nitrogen Dioxide ($\mathbf{NO_2}$) is one of a group of highly reactive gases known as oxides of

nitrogen or nitrogen oxides (NO_x). Other nitrogen oxides include nitrous acid and nitric acid. NO_2 is used as the indicator for the larger group of nitrogen oxides. NO_2 primarily gets in the air from the burning of fuel.)

37. How much does a watch gain or lose per day of its hands coincide every 65 minutes?
1). gain of 10 min 2). Loss of 10.06 min 3). Loss of 10 min 4). Gain of 11 min

Ans:4 (120/11 minute)

40. The earth used for making bricks contains mainly:

1). Clay (alumina) 2). Silica. 3). Oxide of calcium. 4). Oxide of iron.

Ans:2 (Normal brick composition include: Si≈56% and Al_2O_3 ≈30% and balance others.)

42.What did Mahatma Gandhi gift Queen Elizabeth II on her wedding?

1). Kohinoor diamond
2). Peacock Throne
3). Khadi shawl
4). None of the above
Ans:4 (hand woven cotton handkerchief.)
Ref: https://www.thesun.co.uk/fabulous/11121343/the-royals-were-left-outraged-when-the-queens-gift-from-gandhi-was-mistaken-for-a-loincloth/)

43. The young one of a fish is known as
1). Fry 2). Kid 3). Fawn 4). Cub
Ans:1

44. Who wrote the Jungle Book?
1). Rudyard Kipling
2). Salim Ali
3). Rabindranath Tagore
4). Jim Corbett

Ans:1

45. HTML is -
1). the modulation level of a modem
2). not mail - an e-mail facility
3). the high tension requirement of a computer
4). a language in which web pages

Ans:4

The HyperText Markup Language, or HTML is the standard markup language for documents

designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript.

47. In a program, the process of allocating memory at runtime is called as –

1). Static memory allocation
2). Dynamic memory allocation
3). Memoryreallocation
4). None of these

Ans:2

The process of allocating memory at runtime is known as dynamic memory allocation. Library routines known as memory management functions are used for allocating and freeing memory during execution of a program. These functions are defined in stdlib.h header file.

https://www.studytonight.com/c/dynamic-memory-allocation-in-c.php

48.Which one of these is not an element?

1). Copper 2). Zinc 3). Aluminium 4). Steel

Ans:4 (steel is made of iron and other elements like carbon, silicon, etc. and intentionally chromium, nickel, manganese, etc added to meet service requirements)

49. The tube which produces X-rays is.....

1). Geiger Muller tube
2). Coolidge tube
3). Discharge tube
4). C.R.O

Ans:2 (Modern X-ray tube)

50. The unit of latent heat is

1. J/Kg 2. K^{-1} 3. kg-K 4.).None

Ans:1

51.The part of the X-ray spectrum which is a line spectrum is called

1). pure spectrum
2). Impure spectrum
3). absorption spectrum
4).characteristic spectrum

Ans:3

Absorption spectra of X- rays: X- rays can pass through matter but their intensity is reduced while doing so. Attenuation depends on the material though which they pass. It also depends

on the frequencies.

https://nptel.ac.in/content/storage2/courses/115101003/downloads/module2/lecture25.pdf

……

Basic atomic structure

The emission and absorption spectra of the elements depend on the electronic structure of the atom. An atom consists of a number of negatively charged electrons bound to a nucleus containing an equal number of positively charged protons. The nucleus contains a certain number (Z) of protons and a generally different number (N) of neutrons. The diameter of a nucleus depends on the number of protons and neutrons and is typically 10^{-14} to 10^{-15} metre (3.9×10^{-13} to 3.9×10^{-14} inch). The distribution of electrons around the nuclear core is described by quantum mechanics.

https://www.britannica.com/science/spectroscopy/Foundations-of-atomic-spectra#ref620187

52. Which of the following statement about the energy in a quantum is true?

1). Varies directly with frequency
2). Varies inversely with frequency
3).Same for all frequencies
4). None of these

Ans:1 (E=hf)

53.BE/A curve shows that iron nucleus is

1). Stable
2). Unstable
3). Radio active
4). None of these

Ans:1(BE/A:Binding energy vs Number of nucleons curve)

Box: Nuclear binding energy

1. Nuclear binding energy is used to determine whether fission or fusion will be a favorable process.
2. Nucleon-One of the subatomic particles of the atomic nucleus, i.e. a proton or a neutron.

Mass defect-The difference between the calculated mass of the unbound system and the experimentally measured mass of the nucleus.

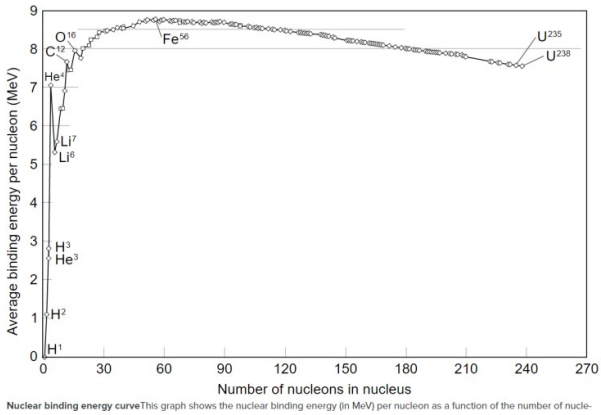
Strong force-The nuclear force, a residual force responsible for the interactions between nucleons, deriving from the color force.

Nuclear binding Energy

Nuclear binding energy is the energy required to split a nucleus of an atom into its component

parts: protons and neutrons, or, collectively, the nucleons. The binding energy of nuclei is always a positive number, since all nuclei require net energy to separate them into individual protons and neutrons. Once mass defect is known, nuclear binding energy can be calculated by converting that mass to energy by using $E=mc^2$. Mass must be in units of kg. Once this energy, which is a quantity of joules for one nucleus, is known, it can be scaled into per-nucleon and per-mole quantities. To convert to joules/mole, simply multiply by Avogadro's number. To convert to joules per nucleon, simply divide by the number of nucleons.

Nuclear binding energy can also apply to situations when the nucleus splits into fragments composed of more than one nucleon; in these cases, the binding energies for the fragments, as compared to the whole, may be either positive or negative, depending on where the parent nucleus and the daughter fragments fall on the nuclear binding energy curve. If new binding energy is available when light nuclei fuse, or when heavy nuclei split, either of these processes result in the release of the binding energy. This energy—available as nuclear energy—can be used to produce nuclear power or build nuclear weapons. When a large nucleus splits into pieces, excess energy is emitted as photons, or gamma rays, and as kinetic energy, as a number of different particles are ejected. Nuclear binding energy is also used to determine whether fission or fusion will be a favorable process. For elements lighter than iron-56, fusion will release energy because the nuclear binding energy increases with increasing mass. Elements heavier than iron-56 will generally release energy upon fission, as the lighter elements produced contain greater nuclear binding energy. As such, there is a peak at iron-56 on the nuclear binding energy curve.



Nuclear binding energy curveThis graph shows the nuclear binding energy (in MeV) per nucleon as a function of the number of nucle-

Nuclear binding energy curve. This graph shows the nuclear binding energy (in MeV) per nucleon as a function of the number of nucleons in the nucleus. Notice that iron-56 has the most binding energy per nucleon, making it the most stable nucleus.

Boundless Chemistry. Provided by: Boundless Learning. Located at: https://www.boundless.com/chemistry/textbooks/boundless-chemistry-textbook/. License: *CC BY-SA: Attribution-ShareAlike*

55. Marble is a –

1). Metamorphic rock.
2). Sedimentary rock.
3). Igneous rock
4). None ofthe above.

Ans:1

56. "Operation FLOOD" relates to -

1).Control of flood due to heavy rain
2). Oil and natural gas exploration
3). Processed food industry
4). Dairy industry

Ans:4

57. Which of these is the brain of a computer?

1). Floppy disc
2). Mouse
3). C.P.U.
4). C.D.

Ans:3 (Central Processing Unit (CPU).

The CPU is the brain of a computer, containing all the circuitry needed to process input, store data, and output results. The CPU is constantly following instructions of computer programs that tell it which data to process and how to process it)

58. The allotrope of phosphorus which is used as a rat poison is -

1). red phosphorus
2). White phosphorus
3). scarlet phosphorus
4). Blackphosphorus

Ans:2. Also yellow phosphorus is used.

Phosphorus is a nonmetallic chemical element of the nitrogen family. It is essential for many biologic processes including synthesis of ATP. Yellow and white phosphorus are used in the manufacture of rodenticides, incendiaries, phosphorus compounds, as an igniter in munitions and flares, as an igniter and pigment in fireworks, and as a semiconductor additive.
https://webwiser.nlm.nih.gov/substance?substanceId=323&identifier=Phosphorus,%20Elemental&identifierType=name&menuItemId=62&catId=83

59. The colour of positive column for neon in a discharge tube is

1). yellow
2). Green
3). Red
4). Pink

Ans:3

Gas	**Color**
2. Helium	Pink-orange
3. Neon	**Red**
4. Argon	Violet
5. Krypton	Lavender

http://chemed.chem.purdue.edu/demos/main_pages/6.5.html

60. The property by which a body returns to its original shape after removal of the force, is called

1). Plasticity. 2). Elasticity. 3). Ductility. 4). Malleability.
Ans:2

63. One hectare is equal to –
1). 2.47 acres. 2). 50 acres. 3). 100 acres. 4). 500 acres.
Ans:1 (or 10000 sq. m)

64. Ratio of corresponding sides of two similar triangles of areas 64 cm^2 and 36 cm^2 is
l). 4:3 2). 16:9 3). 2: 1 4). 1:2
Ans:1. (ratio of corresponding sides square = ratio of area)

65. Which city was captured using a wooden horse?
1). Athens 2). Troy 3). Persepolis 4). Hebron
Ans:2

66. "Tiger Woods" is a player of
1). Polo 2). Golf 3). Billiards 4). Hockey
Ans:2

67. Euclid is associated with -
1). Law of heredity 2). Atomic Theory 3). Geometry 4). None of these
Ans:3

69. Which of the following gases do not form part of the atmosphere?
1). Nitrogen 2). Chlorine 3). Carbon dioxide 4). Oxygen
Ans:3

70. Kinetic energy is the energy possessed by the body by virtue of its motion, potential energy is possessed by the body by virtue of its –
1). size 2). Weight or mass
3). Volume 4). Position (above normal surface)
Ans:4

71. Who discovered positive rays?
1). J.J. Thomson 2). Rontgen 3). Millikan 4). Goldstein
Ans:4