1. Which of these memories will be used to store variable data ?

(A) RAM (B) ROM (C) EPROM (D) PROM

Ans: A

2. Processing time is least in a computer

(A) 16 bit (B) 32 bit (C)8 bit (D) 64 bit

Ans: D

3. A girl ate sweets while fanning the flies away. Due to this she is diagnosed for :

(A) Cancer (B) Cholera (C) Diphtheria (D) Tuberculosis

Ans: B

4. Thorium Breeder Reactors are most suitable for India because :

(A) These develop more power

(B) Its technology is simple

(C) Abundance of thorium deposits are there in India

(D) None of these

Ans: C (Kerala beach sand)

5. Which of the following is a trivalent element ?

(A) Boron (B) Indium (C)Aluminium (D)All of these

Ans: D (Galium also trivalent element for doping semicomductos)

6. For a floating body, centre of buoyancy always :

(A) Coincides with the centre of gravity

(B) Coincides with the centroid of the volume of the fluid displaced

(C) Remains above the centre of gravity

(D) Remains below the centre of gravity

Ans:B

7. The binding material for cemented carbide tools is :

(1) iron (2) chromium (3) nickel (4) cobalt

Ans:4

8. Centre lines

(A) are drawn to indicate axes of cylindrical, conical, spherical objects

(B) are thin, long, chain lines

(C) generally extend beyond the outlines to which they refer

(D) have all the above properties

Ans:D

9. The instrument used to measure external and internal diameter of shafts, thickness of parts and depth of holes is :

(A) Inside micrometer (B) Outside micrometer

(C) Vernier calipers (D) Slip gauge

Ans:C

10. In a DNA, chromosomes are concerned with :

(A) Respiration

(B) Assimilation

(C) Transmission of hereditary characteristics

(D) Nutrition

Ans: C

11. The equilibrium super elevation required to counteract the centrifugal force fully is given by :

(A) $\frac{V^2}{27.5R}$ (B) $\frac{V^2}{75R}$ (C) $\frac{(0.75V)^2}{127R}$ (D) $\frac{V^2}{127R}$

Ans:D

12. Cores of transformer/electric motors are generally made from laminations of :

(A) Carbon (B) Silicon steel (C) Cast iron (D) None of these

Ans:B

13. For which of the following applications, a d.c. motor is preferred over an ac motor ?

(A) Variable speed operation (B) High speed operation

(C) Low speed operation (D) Fixed speed operation

Ans: A

14. The dynamic resistance of a diode is defined as :

(A) The ratio of change in voltage to change in current

(B) The ratio of change in voltage to square of s change in current

(C) The ratio of applied voltage to current

(D) None of the above

Ans:A

DYNAMIC RESISTANCE OR AC RESISTANCE

The dynamic resistance is the resistance offered by the p-n junction diode when AC voltage is applied. It is defined as the ratio of change in voltage to the change in current. It is denoted as r_f.

$$r_f = \frac{change\ in\ voltage}{change\ i\ current}$$

15. Gas leaked during Bhopal Tragedy was :

(A) Sodium isothiocyanate (B) Potassium isothiocyanate

(C) Ethylisocyanate (D) Methyl isocyanate

Ans: D

16. One metre is equal to :

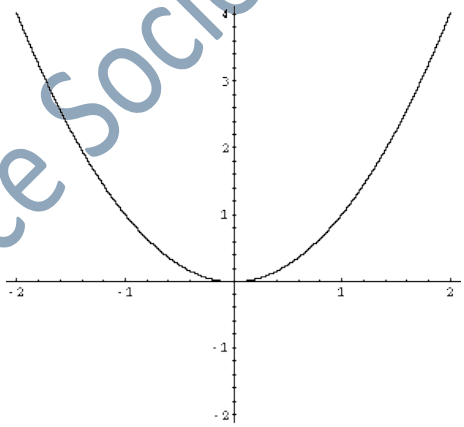
(A) 10^{-6} micron (B)10^{6} micron (C)10^{-3} micron (D) 10^{3} micron

Ans: B

17. If $x < -1$, then x^2 is :

(A) 1 (B) Less than 1 (C) More than 1 (D) None of these

Ans:C



$y = x^2$

http://mathcentral.uregina.ca/qq/database/qq.09.06/mike1.html

18. Which set of two rivers form the world's largest delta before their water flows into the sea?

(A) Ganga – Brahmaputra (B) Rhine – Seine

(C) Nile – Euphrates (D) Danube – Thames

Ans: A

19. A bullet of mass 0.01 kg is fired from a gun weighing 5.0 kg. If the initial speed of the bullet is 250 m/sec, calculate the speed with which the gun recoils.

(A) - 0.50 m/sec (B) +0.05 m/sec (C) -0.25 m/sec (D) +0.25 m/sec

Ans:A. [For the bullet $m_1v_1 = m_2v_2$for the gun;→ $0.01x250 = 5xv_2$)]

20. The primary host of Malaria parasite is :

(A) Male Culex (B) Male Anopheles

(C) Female Anopheles (D) Female Culex

Ans:C

21. In a safety fuse, the temperature to which the wire gets heated is directly proportional to the :

(A) Square of the current (B) Fourth power of the current

(C) Cube of the current (D) None of these

Ans: A (Joule's Law of heating $H = I^2Rt$)

22. Size of a theodolite is specified by :

(A) The length of the telescope

(B) The diameter of the vertical circle

(C) The diameter of lower plate

(D) The diameter of upper plate

Ans: C

ze of a theodolite is defined by **the diameter of the graduated circle of the lower plate**

odolite is a precision optical instrument for measuring angles between designated visible points horizontal and vertical planes

23. With the addition of selected impurities (trivalent/pentavalent), the resistance of a semiconductor :

(A) Increases

(B) Decreases

(C) First decreases then increases

(D) First increases then decreases

Ans:B

24. The organic acid present in vinegar is :

(A) Methanoic acid (B) Ethanoic acid

(C) Propanoic acid (D) Acetic acid

Ans:D

26. Find the last term in the given series : 1, 8, 27, 64, 125, 216, 343, ?

(A) 420 (B) 476 (C) 496 (D) 512

Ans:D. (The series is of cubes)

27. In human body, which of the following is the largest organ in size ?

(A) Thyroid (B) Liver (C) Spleen (D) Pancreas

Ans: B

28. Hard copy means

(A) Output on tape (B) Output on Hard Disk

(C) Output on printer (D) Details of Hardware

Ans:C

29. Among the following measuring instruments, creeping occurs in :

(A) Ammeter (B)Energy meter (C) Voltmeter (D) None of these

Ans: B

CREEPING IN ENERGY METER

Definition: Creeping in energy meter is the **phenomenon** in which the aluminium **disc rotates** continuously when only the **voltage** is **supplied** to the **pressure coil,** and **no current** flows through the **current coil**. In other words, the **creeping** is the kind of error in which the **energy meter consumes** a very **small amount** of **energy** even when **no load** is **attached** to the **meter.**

The creeping increases the speed of the disc even under the light load condition which increases the meter reading. The vibration, stray magnetic field and the extra voltage across the potential coil are also responsible for the creeping.

Prevention of Creeping

The creeping is avoided by drilling the hole in the disc. The holes are diametrically opposite to each other. The aluminium disc stops rotating even when the small edge of the disc come under the pole of the magnet. The holes will limit the revolution of the disc.

https://circuitglobe.com/creeping-in-energy-meter.html

30. Which of the following is not the correct method of increasing fatigue limit?

(1) shot peening (2) nitriding of surface

(3) cold working (4) surface decarburization

Ans:4

31. Among the following, burning of fossil fuels is the main cause of :

(A) Nitrogen oxide pollution (B) Nitrous oxide pollution

(C) Sulphur dioxide pollution (D) Nitric oxide pollution

Ans:C

31.1 Among the following, burning of fossil fuels is the main cause of global warming:

(A) Nitrogen oxide pollution (B) Nitrous oxide pollution

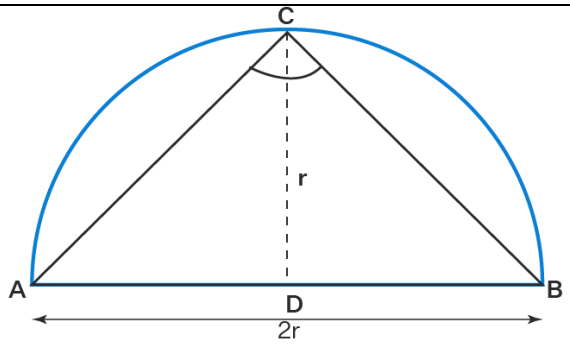
(C) Sulphur dioxide pollution (D) CO_2

Ans:D

32. The area of the largest triangle that can be inscribed inside a semicircle of radius r is :

(A) 2 r (B) 0.25 r^2 (C) 2 r^2 (D)r^2

Ans: D. (Area of triangle = ½ x 2r x r)



/www.cuemath.com/ncert-solutions/area-of-the-largest-triangle-that-can-be-inscribed-in-a-semi-circle-of-radius-r-units-is-a-r2-square-units-b-2r-square-units-c-1-2-r2-square-units-d-r2-4-square-units/

33. The term RADAR stands for :

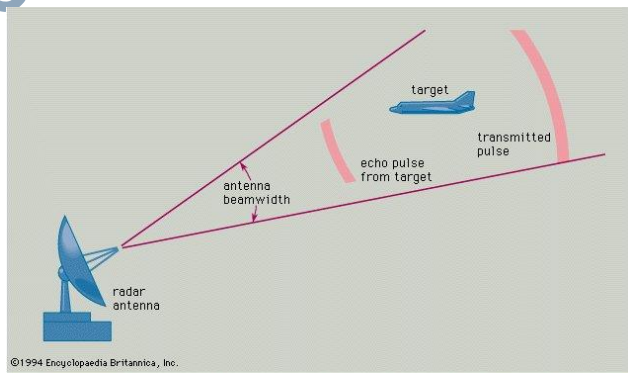
(A) Radio direction and reflection

(B) Radio detection and ranging

(C)Radio waves dispatching and receiving

(D) Random dispatching and receiving

Ans:B



https://www.britannica.com/technology/radar

Skolnik, Merrill I.. "radar". ***Encyclopedia Britannica***, 7 Oct. 2021, https://www.britannica.com/technology/radar. Accessed 7 December 2021.

Radar, electromagnetic sensor used for detecting, locating, tracking, and ıizing objects of various kinds at considerable distances. It operates by transmitting

)magnetic energy toward objects, commonly referred to as targets, and observing noes returned from them. The targets may be aircraft, ships, spacecraft, automotive es, and astronomical bodies, or even birds, insects, and rain. Besides determining esence, location, and velocity of such objects, radar can sometimes obtain their size ape as well. What distinguishes radar from optical and infrared sensing devices is lity to detect faraway objects under adverse weather conditions and to determine ange, or distance, with precision.

34. What do you obtain on simplification :

2.3 x 2.3 -2x 1.7x 2.3 +1.7.x 1.7

(A) 0.29 (B) 1.5 (C) 15 (D) 0.36

Ans:4

35. By selling a shirt for Rs.450 a man loses 25%. At what price will he sell the shirt in order to gain 50% ?

(A) Rs.600 (B) Rs. 750 (C) Rs.900 (D) Rs.1,000

Ans:B

36. If a beam is constrained to move and heated, it will develop …. stress

(A) shear (B) tensile (C) principal (D) compressive

Ans:D

37. The density of water is :

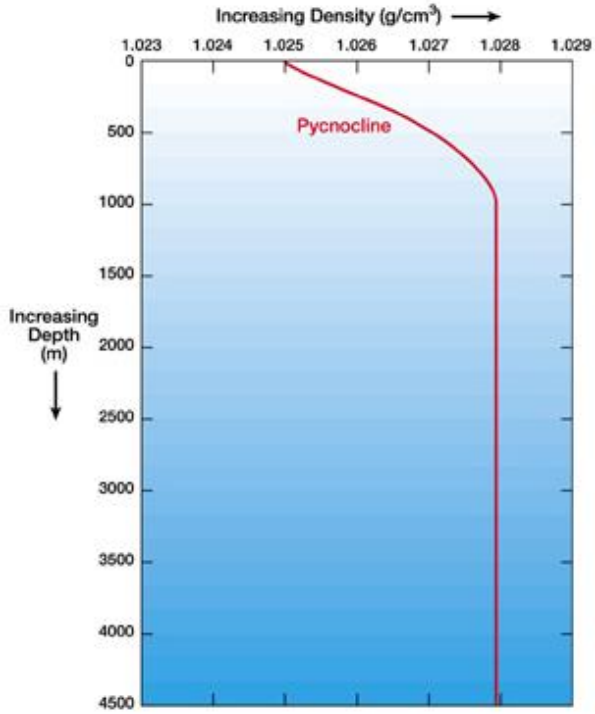
(A) 10^{-3} kg/m^3 (B) 1 kg/m^3 (C) 10^2 kg/m^3 (D) 10^3kg/m^3

Ans:D

38. The density of sea water on its surface is :

(A) 10^{-3} kg/m^3 (B) 1 kg/m^3 (C) 10^2 kg/m^3 (D) 1027 kg/m^3

Ans:D



https://www.windows2universe.org/earth/Water/density.html

39. Monetary Policy of India is formulated and announced by :

(A) State Bank of India

(B) Reserve Bank of India

(C) National Development Council

(D) None of these

Ans: B

40. Generally, which of the following elements is not a constituent/alloying element in stainless steel ?

(A) Sulfur (B) Tungsten (C) Chromium (D) Nickel

Ans: A

41. Which of the following is an active component of a circuit?

(A) Transistor (B) Resistor (C) Capacitor (D) Inductor

Ans: A

42. A transistor has an emitter current of 8 mA and α of 0.99. Which of the following could be the collector current?

(A) 7.92 mA (B) 5.00 mA (C) 8.1 mA Bird (D) 7.84 mA –

Ans:A ($I_c = \alpha I_e$)

43. An accurate ammeter must have a resistance of:

(A) High value (B) Low value

(C)Very low value (D) Very high value

Ans:C

A voltmeter is an instrument used for measuring electrical potential difference between two points in an electric circuit. An ammeter is a measuring device used to measure the electric current in a circuit.

A voltmeter is connected in parallel with a device to measure its voltage, while an ammeter is connected in series with a device to measure its current.

At the heart of most analog meters is a galvanometer, an instrument that measures current flow using the movement, or deflection, of a needle. The needle deflection is produced by a magnetic force acting on a current-carrying wire.

KEY TERMS

- **shunt resistance**: a small resistance R placed in parallel with a galvanometer G to produce an ammeter; the larger the current to be measured, the smaller R must be; most of the current flowing through the meter is shunted through R to protect the galvanometer
- **galvanometer**: An analog measuring device, denoted by G, that measures current flow using a needle deflection caused by a magnetic field force acting upon a current-carrying wire.

- A voltmeter is connected in parallel with a device to measure its voltage, while an ammeter is connected in series with a device to measure its current.
- At the heart of most analog meters is a galvanometer, an instrument that measures current flow using the movement, or deflection, of a needle. The needle deflection is produced by a magnetic force acting on a current-carrying wire.

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https://courses.lumenlearning.com/boundless-physics/chapter/voltmeters-and-a rs/

Electricity is measured in two ways. i.e., either through current or voltage. The current and voltage of the circuit are measured through ammeter and voltmeter. The

working principle of the ammeter and voltmeter are same as that of the galvanometer.

The galvanometer uses a coil which is placed between the magnet. When the current flows through the coils, it becomes deflected. The deflection of the coils depends on the charge passing through it. This deflection is used for measuring the current or voltage. The galvanometer works as a voltmeter when the resistor is placed in series with the galvanometer.

https://circuitglobe.com/difference-between-ammeter-and-voltmeter.html

44. In India in recent years, with which of the following is the term 'Golden Handshake' associated ?

(A) Share Market (B) Smuggling

(C) Voluntary Retirement Benefits (D) Theft

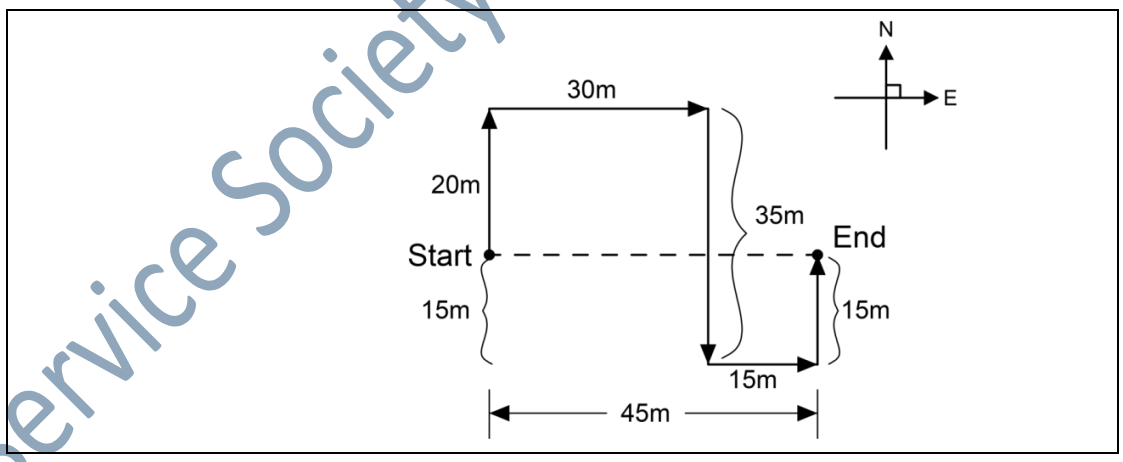
Ans:C

45. From his house, Ram walks 20 m in North direction. Then he turns right and walks30 m. Then he again turns right and walks 35 m. Then he turns left and walks 15 m. Again he turns left and walks 15 m. In which direction and how many m away is he from his house?

(A) 45 metre East (B) 30 metre East

(C) 15 metre West (D) 30 metre North

Ans:A



46. With which field is Dada Saheb Phalke Award associated ?

(A) Literature, (B) Cinema (C) Jourrealism (D)Volley Ball

Ans: B

47. In digital computer programming, subroutines are used :

(A) To reduce programme execution time at the expense of more memory

(B) To reduce storage requirements

(C) To increase programming ease and reduce storage requirements

(D) Because most of the functions are same

Ans:

In computer programming, a subroutine is **a sequence of program instructions that performs a specific task, packaged as a unit**. This unit can then be used in programs wherever that particular task should be performed

48. The LCM of numbers 12, 18 and 24 is how much more than their HCF ?

(A) 66 (B) 69 (C) 70 (D)72

Ans:A

LCM of the given numbers: 2x6, 3x6, 4x6 = 72

HCF of the given numbers: 2x6, 3x6, 4x6 = 6

LCM-HCF = 72-6 = 66.

49. One of the important parameters of lathe specification `is

(1) swing over the bed (2) swing over tool post

(3) distance between centers (4) None

Ans:1

50. Gypsum is a:

(A) Mechanically formed sedimentary rock

(B) Igneous rock

(C) Chemically precipitated sedimentary rock.

(D) Metamorphic rock

Ans:C

Gypsum is a mineral found in crystal as well as masses called gypsum rock. It is a very soft mineral and it can form very pretty, and sometimes extremely large colored crystals. Massive gypsum rock forms within layers of sedimentary rock, typically found in thick beds or layers. It forms in lagoons where ocean waters high in calcium and sulfate content can slowly evaporate and be regularly replenished with new sources of water. The result is the accumulation of large beds of sedimentary gypsum.

https://mineralseducationcoalition.org/minerals-database/gypsum/

Gypsum is a soft sulfate mineral composed of calcium sulfate dihydrate, with the chemical formula $CaSO\ 4{\cdot}2H_2O$. It is widely mined and is used as a fertilizer and as the main constituent in many forms of plaster, blackboard/sidewalk chalk, and drywall.

Gypsum also crystallizes as translucent crystals of selenite. It forms as an evaporite mineral and as a hydration product of anhydrite.

The Mohs scale of mineral hardness defines gypsum as hardness value 2 based on scratch hardness comparison.

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