C 11- UNIT 2- UNITS & MEASUREMENTS- MCQS (120Q)

1. In which year SI system of units was developed and recommended by General Conference on Weights and Measures?

(1) 1951 (2) 1961 (3) 1971 (4) 1981

2. In mechanics, the number of base quantities is

(1) 2 (2) 3 (3) 4 (4) 5

3. Number of base SI units is

(1) 4 (2) 7 (3) 3 (4) 5

4. Which of the following units is not a base unit?

(1) metre (2) candela (3) ampere (4) pascal

5. One nanometre is equal to

(1) 10^{9} mm (2) 10^{-6} cm (3) 10^{-7} cm (4) 10^{-9} cm

6. Wavelength of ray of light is 0.00006m. It is equal to

(1) 6 microns (2) 60 microns (3) 600 microns (4) 0.6 microns

7. Universal time is based on

(1) Rotation of the earth on its axis (2) Earth's orbital motion around the earth

(3) Vibrations of cesium atom (4) Oscillations of quartz crystal

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Key: 1. 3 2.2 3.2 4.4 5.3 6.2 7. 3

Explanations:

1. (3)
2. (2) In mechanics the number of base quantities is 3 i.e. length, mass and time. All other quantities of mechanics can be expressed in terms of length, mass and time through simple relations.
3. (2)
4. (4) Among the given units pascal is the derived unit whereas others are the fundamental or base units.
5. (3) 1 nm = 10^{-9} m = 10^{-7} cm
6. (2) $6 \times 10^{-5} = 60 \times 10^{-6}$ = 60 microns
7. (3) According to the definition, second is the time in which cesium - 133 atom in ground state vibrates 9,192,631,770 times in an atomic clock.

8. A micron is related to centimeter as

(1) 1 micron=10^{-8}cm (2) 1 micron=10^{-6}cm

(3)1 micron=10^{-5}cm (4) 1 micron=10^{-4}cm

9. Which is the correct unit for measuring nuclear radii

(1) micron (2) millimetre (3) angstrom (4) fermi

10. kilowatt – hour is a unit of

(1) Electrical charge (2) Energy

(3) Power (4) Force

11. How many wavelengths of Kr^{86} are there in one metre?

(1) 1553164.13 (2) 1650763.73 (3) 2348123.73 (4) 652189.63

12. fathom is the unit to measure the

(1) speed of ship (2) depth of sea

(3) distance of the ship (4) speed of cyclone

13. ampere - hour is a unit of

(1) Quantity of electricity (2) Strength of electric current

(3) Power (4) Energy

14. parsec is a unit of

(1) Distance (2) Velocity (3) Time (4) Angle

Key : 8.4 9. 4 10.2 11.2 12.2 13.1 14.1

Explanations:

8. (4) 1 micron = 10^{-6} m = 10^{-4} cm
9. (4)
10. (2)
11. (2) metre is the distance that contains 1650763.73 wavelengths of orange - red light of Kr- 86.
12. (2) fathom is a unit of length equal to six feet. It is used measure depth of water in sea.
13. (1) Charge = current $\times$ time
14. (1) Astronomical unit of distance

15. **1kWh =**

(1) 1000W (2) 36×10^5J (3) 1000 J (4) 3600 J

16. **Which of the following is not the unit of time**

(1) micro second (2) leap year (3) lunar months (4) parallactic second

17. **'torr' is the unit of**

(1) Pressure (2) Volume (3) Density (4) Flux

18. **The S.I. unit of gravitational potential is**

(1) J (2) Jkg^{-1} (3) Jkg (4) Jkg^{-2}

19. **Density of wood is 0.5gm cm^{-3} in the CGS system of units. The corresponding value in MKS units is**

(1) 500 (2) 5 (3) 0.5 (4) 5000

20. **The solid angle subtended by the periphery of an area 1cm^2 at a point situated symmetrically at a distance of 5 cm from the area is**

(1) 2 x 10^{-2} sterdian (2) 4 x 10^{-2} sterdian (3) 6 x 10^{-2} sterdian (4) 8 x 10^{-2} sterdian

21. **What is the length of the arc of a circle of radius 30 cm which subtend an angle $\frac{\pi}{6}$ at the centre?**

(1) 11.7 cm (2) 14.7 cm (3) 16.7 cm (4) 15.7 cm

Key : 15.2 16.4 17.1 18.2 19.1 20. 21. 4

Explanations:

15. (2) 1 kWh = $1 \times 10^3 \times 3600$ W × sec = 36×10^5 J

16. (4)

17. (1)

18. (2) Gravitational potential = $\frac{\text{work}}{\text{mass}}$ ∴ $V = \frac{W}{m}$ so, SI unit of V = $\frac{\text{Joule}}{\text{kg}}$

19. (1) 0.5 gm cm^{-3} = 500 kgm^{-3}

20. (2) Solid angle = $d\Omega = \frac{dA}{r^2} = \frac{1\ cm^2}{(5\ cm)^2} = 0.04$ stradian = 4 x 10^{-2} stradian

21. (4) $\theta = \frac{l}{r} \Rightarrow l = \theta r = \frac{\pi}{6} \times 30\ cm = \frac{3.14}{6} \times 30\ cm = 15.7cm$

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