

## PPSC Physics Subject Specialist & Senior Subject Specialist Solved Past Papers

1. A portable device which is widely used for the detection of ionizing particle or radiations:

- (a) **Geiger counter** ✓
- (b) Wilson cloud chamber
- (c) Solid state detector
- (d) None of these

02. 1 Kwh=

- (a)  $6 \times 10^2$  Joule
- (b)  $6 \times 10^5$  Joule
- (c)  $6 \times 10^6$  Joule
- (d)  **$36 \times 10^5$  Joule** ✓

03. The essential part/s of a moving coil galvanometer is/are:

- (I) A U-Shaped permanent magnet with cylindrical concave pole-pieces (II) A flat coil of thin enamel insulated wire usually rectangular (III) An spiral metallic wire connected to external terminal
- (a) I only
- (b) **I & II only** ✓
- (c) I, II & III
- (d) II & III

04. Calculate the centripetal acceleration and centripetal force on a man whose mass is 80 kg when resting on the ground at the equator if the radius of earth is  $6.4 \times 10^6$  m.

- (a) 69 N
- (b) 35 N
- (c) **69 N** ✓
- (d) 65 N

05. The process of combining audio frequency (a-f) and radio frequency (r-f) waves to accomplish translational is called:

- (a) Transmission
- (b) Rectifier
- (c) **Modulation** ✓
- (d) Crystal Diode

06. A convex lens of focal length 20 cm, is used to form an erect image which is twice as long as the object. Find the position of the object?

- (a) **10 cm** ✓
- (b) 20 cm
- (c) -20 cm
- (d) 5 cm

07. The electron acquires a speed of  $10^6 \text{ ms}^{-1}$ . Find its energy in electron volts:

- (a) 66 ev
- (b) **84 ev** ✓
- (c) 23 ev
- (d) 34 ev

08. A basic electric instrument which is used for the detection (or measurement) of small current:

- (a) Ammeter
- (b) Voltmeter
- (c) **Galvanometer** ✓
- (d) Transmitter

09.  $\Delta V/\Delta S$  is the rate of change of potential with respect to the distance and it is called:

- (a) Electric field
- (b) Electric flux
- (c) Potential Difference
- (d) **Potential Gradient** ✓

The resonant frequency of an LC-Circuit is:

- (a)  $f = 2\pi LC$
- (b)  $f = 1 / 2\pi\sqrt{LC}$
- (c)  $f = 1/ 2LC$
- (d) None of these

10. Which one of the following is NOT needed in Nuclear Fission reactor?

- (a) fuel
- (b) accelerator
- (c) moderator
- (d) None of these

11. A Watt – sec is a unit of:

- (a) Force
- (b) Energy
- (c) Power
- (d) None of these

12. The force on a charge moving with the velocity in a magnetic field B is given by:

- (a)  $F = (q/v \times B)$
- (b)  $F = (qv \times B)$
- (c)  $F = (qv + B)$
- (d) None of these

13. The half life of a radioactive isotope is 140 days. How many days would it take to loose 3/4 of its Initial activities:

- (a) 105 days
- (b) 280 days
- (c) 35 days
- (d) None of these

14. A U-235 nucleus will split when it captures:

- (a) an  $\alpha$ -particle
- (b) m. radiation
- (c) neutron
- (d) None of these

15. An LRC Circuit has  $R = 4\Omega$ ,  $X_c = 3$  and  $X_L = 6$ , the impedance of the circuit is:

- (a)  $5\Omega$
- (b)  $7\Omega$
- (c)  $13\Omega$
- (d) None of these

16. A magnetic field cannot:

- (a) Accelerate a charge
- (b) Exert a force on a charge
- (c) Change the kinetic energy of a charge
- (d) None of these

17. For hydrogen atom the energy needed to ionize it is \_\_\_\_\_ electron volts and the corresponding ionization potential is \_\_\_\_\_.

- (a) 6 volts, 6 volts
- (b) 12 volts, 12.6 volts
- (c) 6 volts, 13 volts
- (d) 6 volts, 13.6 volts ✓**

18. The length of a measuring rod is 1 m when it is at rest. What will its length be if it is moving with a velocity one third of the speed of light.

- (a) 943 m ✓**
- (b) 346 m
- (c) 64 m

(d) 563 m

19. A changing current "i" in any circuit induces an emf "e" in that circuit, which is equal to:

- (a)  $e = di/dt$
- (b)  $E = i d\Phi/dt$
- (c)  $e = -L di/dt$
- (d) None of these

20. The resonant frequency of an LC-Circuit is:

- (a)  $f = 2\pi LC$
- (b)  $f = 1 / 2\pi\sqrt{LC}$
- (c)  $f = 1/2LC$
- (d) None of these

21. The induced current always flows in such a direction as to oppose the change which is giving rise to it, This state of:

- (a) Ampere's law
- (b) Ohm's law
- (c) Newton's law
- (d) Lenz's law ✓**

22. A neutron travels a distance of 12 m in a time interval of  $3.6 \times 10^{-4}$  s. Assuming its speed was constant, find its kinetic energy. Take  $1.7 \times 10^{-27}$  kg as the mass of neutron.

- (a) 87 eV
- (b) 78 eV ✓**
- (c) 56 eV
- (d) -8.56 eV

23. The energy stored in the fossil fuel is

- (a) chemical energy ✓**
- (b) heat energy
- (c) Electrical energy
- (d) Elastic potential energy

24. Electrochemical energy is required for the working of

- (a) Circulatory system
- (b) Nervous system ✓**
- (c) Excretory system
- (d) Digestive system

25. A vector has a magnitude of 12. When its tail is at the origin it lies between the

positive x axis and the negative y axis and makes an angle of  $30^\circ$  with the x axis. Its y component is:

- (a)  $6/\sqrt{3}$
- (b)  $-6\sqrt{3}$
- (c) 6
- (d)  $-6\sqrt{3}$**

26. The hydraulic automobile jack illustrates:

- (a) Archimedes' principle
- (b) Pascal's principle** ✓
- (c) Hooke's law
- (d) Newton's third law

27. What is the magnifying power of a convex lens of focal length 5 cm?

- (a) 3
- (b) 5
- (c) 6** ✓
- (d) 20

28. Which portion of light has a wavelength in a range from 400 to 780 nm, with a frequency range of  $405 \times 10^{14}$  to  $790 \times 10^{14}$  Hz?

- (a) infrared light
- (b) visible light** ✓
- (c) ultra-violet light
- (d) none of the above

29. Candela is a unit of

- (a) acoustic intensity
- (b) electric intensity
- (c) luminous intensity** ✓
- (d) magnetic intensity

30. Which are different types of emission spectrum?

- (a) continuous spectrum
- (b) line spectrum
- (c) band spectrum
- (d) all of the above** ✓