

FAISALABAD BOARD

GRADE 10

PHYSICS

2018 GROUP 1

Lesson 1 of 32

Section-A (MCQs)

i) What is the power rating of a lamp connected to a 12V source when it carries 2.5 A?
(Mark 1)

A. 4.8 W

B. 14.5 W

C. 30 W

D. 60 W

Answer:

C. 30 W

ii) Transformer is used to change the value of: (Mark 1)

A. Charge

B. Energy

C. Power

D. Voltage

Answer:

D. Voltage

iii) The cathode-ray oscilloscope consists of the components:
(Mark 1)

A. 5

B. 2

C. 3

D. 4

Answer:

C. 3

iv) The brain of any computer system is:

(Mark 1)

A. Monitor

B. Memory

C. CPU

D. Control Unit

Answer:

C. CPU

v) One byte is equal to _____ bits.

(Mark 1)

A. 4

B. 6

C. 8

D. 10

Answer:

C. 8

vi) What happens to the atomic number of an element which emits one alpha particle:

(Mark 1)

- A. Increases
- B. Stays the same
- C. Decreases by 2
- D. Decreases by 1

Answer:

- C. Decreases by 2

vii) When did Christian Huygens invent the pendulum clock?
(Mark 1)

- A. 1856
- B. 1656
- C. 1756
- D. 1956

Answer:

- B. 1656

viii) The speed of sound in wood at 25°C in meter per second is:
(Mark 1)

- A. 3980
- B. 2000
- C. 1290
- D. 972

Answer:

- B. 2000

ix) The index of refraction of ethyl alcohol is:

(Mark 1)

A. 2.42

B. 2.21

C. 1.31

D. 1.36

Answer:

D. 1.36

x) An object is 14 cm in front of a convex mirror. The image is 5.8 cm behind the mirror. What is the focal length of the mirror? (Mark 1)

A. -20 cm

B. -9.9 cm

C. -8.2 cm

D. -4.1 cm

Answer:

B. -9.9 cm

xi) Capacitance is defined as: (Mark 1)

A. VC

B. Q/V

C. QV

D. V/Q

Answer:

B. Q/V

xii) An electric current in conductors is due to the flow of:
(Mark 1)

- A. Positive ions
- B. Negative ions
- C. Positive charges
- D. Free electrons

Answer:

- D. Free electrons

Q.2 i) Find time period of a simple pendulum of 1.0 m long where $g = 10 \text{ ms}^{-2}$.
(Marks 2)

Q.2 ii) Define longitudinal waves. (Marks 2)

Q.2 iii) Define pitch. On what factor it depends? (Marks 2)

Q.2 iv) Define intensity. What is its SI unit? (Marks 2)

Q.2 v) Define ultrasound. (Marks 2)

Q.2 vi) Define electric current. Write its unit. (Marks 2)

Q.2 vii) Define Ohm. (Marks 2)

Q.2 viii) If the diameter of a copper wire is 2 millimetre, then find its cross-sectional area.
(Marks 2)

Q.3 i) State laws of reflection of light. (Marks 2)

Q.3 ii) What is meant by farsightedness? (Marks 2)

Q.3 iii) Define electrostatic induction. (Marks 2)

Q.3 iv) State Coulomb's law. (Marks 2)

Q.3 v) What is mica capacitor? (Marks 2)

Q.3 vi) What is meant by compact disk? (Marks 2)

Q.3 viii) Define hardware. (Marks 2)

Q.4 i) Describe the working principle of a DC motor. (Marks 2)

Q.4 ii) State Lenz's law. (Marks 2)

Q.4 iii) What is meant by thermionic emission? (Marks 2)

Q.4 iv) How are the electron deflected by electric field? (Marks 2)

Q.4 v) NAND gate is reciprocal of AND gate. Discuss briefly.
(Marks 2)

Q.4 vi) What is meant by nuclear transmutation? (Marks 2)

Q.4 vii) Describe two properties of gamma radiations. (Marks 2)

Q.4 viii) Write three isotopes of hydrogen. (Marks 2)

Q.5 a) What is meant by ripple tank? Explain refraction of water waves with the help of ripple tank. (Marks 4)

Q.5 b) An object 10 cm high is placed at a distance of 20cm from a concave lens of focal length 15 cm. Calculate the position and size of the image. Also, state the nature of the image. (Marks 5)

Q.6 a) Describe four safety measures that should be taken in connection with the household circuit. (Marks 4)

Q.6 b) Two capacitors of capacitances 6 μF and 12 μF are connected in series with 12 V battery. Find the equivalent capacitance of the combination. Also, find the charge and potential difference across each capacitor. (Marks 5)

Q.7 a) Differentiate between magnetic disc and hard disc. (Marks 4)

Q.7 b) Write five hazards of radiations. (Marks 5)

FAISALABAD BOARD

GRADE 10

PHYSICS

2018 GROUP 2

Lesson 1 of 32

Section-A (MCQs)

i) The formula of Hooke's law is: (Mark 1)

A. $F = k x$

B. $F = -k x$

C. $k = x/F$

D. $x = - Fk$

Answer:

B. $F = -k x$

ii) The speed of sound in air at 0°C is:

(Mark 1)

- A. 331 ms⁻¹
- B. 346 ms⁻¹
- C. 327 ms⁻¹
- D. 386 ms⁻¹

Answer:

- A. 331 ms⁻¹

iii) The critical angle of water is:

(Mark 1)

- A. 48.8°
- B. 49.5°
- C. 45°
- D. 46°

Answer:

- A. 48.8°

iv) The speed of light in glass is:

(Mark 1)

- A. 2×10^8 ms⁻¹
- B. 2×10^{-8} ms⁻¹
- C. 3×10^{-8} ms⁻¹
- D. 3×10^8 ms⁻¹

Answer:

- A. 2×10^8 ms⁻¹

v) If the medium between the two charges is air, then the value of k will be:

(Mark 1)

- A. 9×10^{-9} Nm²C⁻²
- B. 9×10^{-8} Nm²C⁻²
- C. 9×10^8 Nm²C⁻²
- D. 9×10^9 Nm²C⁻²

Answer:

- D. 9×10^9 Nm²C⁻²

vi) SI unit of potential difference is:

(Mark 1)

- A. Ampere
- B. Volt
- C. Farad
- D. Pascal

Answer:

- B. Volt

vii) SI unit of resistance is:

(Mark 1)

- A. Farad
- B. Volt
- C. Ohm
- D. Watt

Answer:

C. Ohm

viii) A temporary magnet which cause to flow current through a coil is:

(Mark 1)

- A. Magnetic field
- B. Electric intensity
- C. Magnet
- D. Electromagnet

Answer:

D. Electromagnet

ix) The components of cathode ray oscilloscope are: (Mark 1)

- A. 2
- B. 3
- C. 4
- D. 6

Answer:

B. 3

x) Email is the abbreviation of: (Mark 1)

- A. Extra mail
- B. Emergency mail
- C. Electronic mail
- D. Electrical mail

Answer:

C. Electronic mail

xi) When did Graham Bell make a simple telephone? (Mark 1)

- A. 1867
- B. 1870
- C. 1886
- D. 1876

Answer:

D. 1876

xii) The number of neutrons in tritium (${}^3\text{H}_1$) is: (Mark 1)

- A. 2
- B. 3

C. 4

D. 5

Answer:

A. 2

Q.2 i) Define refraction of waves. (Marks 2)

Q.2 ii) What is meant by a simple pendulum? (Marks 2)

Q.2 iii) What is meant by echo of sound? (Marks 2)

Q.2 iv) Define acoustics? (Marks 2)

Q.2 v) What is meant by quality of sound? (Marks 2)

Q.2 vi) Define Ohmic and non-Ohmic materials. (Marks 2)

Q.2 vii) Prove that: $P = V^2/R$ (Marks 2)

Q.2 viii) Define conventional current. (Marks 2)

Q.3 i) What is meant by the principal focus of a convex lens and a concave lens?
(Marks 2)

Q.3 ii) What is the difference between real and virtual image? (Marks 2)

Q.3 iii) An object 10cm in front of a convex mirror forms an image 5cm behind the mirror. What is the focal length of the mirror? (Marks 2)

Q.3 iv) Define potential difference and its unit. (Marks 2)

Q.3 v) What is gold leaf electroscope? (Marks 2)

Q.3 vi) What is the difference between data and information? (Marks 2)

Q.3 vii) What is the difference between hardware and software?
(Marks 2)

Q.3 viii) How light signals are sent through optical fibres? (Marks 2)

Q.4 i) What is the role of a relay in a circuit? (Marks 2)

Q.4 ii) How direction of magnetic field is measured by the right hand grip rule?
(Marks 2)

Q.4 iii) Write any two components of cathode ray oscilloscope.
(Marks 2)

Q.4 iv) Define analogue electronics. (Marks 2)

Q.4 v) Write truth table of OR operation. (Marks 2)

Q.4 vi) Define nuclear fusion.

(Marks 2)

Q.4 vii) Define half-life.

(Marks 2)

Q.4 viii) What are two common hazards of radiation? Briefly describe the precautions there are taken against them.

(Marks 2)

Q.5 a) Derive a relationship between velocity, frequency, and wavelength of a wave. Write a formula relating velocity of a wave to its time period and wavelength.

(Marks 4)

Q.5 b) The power of a convex lens is 5 D. At what distance the object should be placed from the lens so that its real and two times larger image is formed?

(Marks 5)

Q.6 a) Discuss the main features of the parallel combination of resistors.

(Marks 4)

Q.6 b) Two charges repel each other at a force of 0.1N when they are 5 cm apart. Find the force between the same charges when they are 2cm apart.

(Marks 5)

Q.7 a) Explain the phenomena of transmission of electrical signals through wires.

(Marks 4)

Q.7 b) The half-life of $^{16}\text{N}_7$ is 7.3s. A sample of this nuclide of nitrogen is observed for 29.2 s. Calculate the fraction of the original radioactive isotope remaining after this time.

(Marks 5)