ANNUAL EVALUATION 2018 -19
PHYSICS
STD - IX Answer Key
Prepared by Manoj K.M, G.H.S.S Anakkara, Palakkad Dist.

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From 1 to5, Answer any 4 questions each carries 1 score.

1. Pascal's law
2. 0.4 A { I = Q/t = 0.8/2 = 0.4A
3. 9. 83 m/s^2
4. Chothi
5. Graph (B)

From 6 to 10, Answer any 4 questions each carries 2 score.

6.(a) Rheostat (1 score)

(b) For a conductor of uniform area of cross section, the length of the conductor and the resistance are directly proportional. (1 score)

7. (a) 1. To forecast the weather 2. To calculate the seasons
3. For agriculture and farming 4. To locate the position of a place etc. (1 score)

7.(b) Saptharshikal or Big Dipper. (1 score)

8. (a) 9.8N {1 kgwt = 1 kg*9.8 m/s^2 = 9.8 kgm/s^2 = 9.8 N} (1 score)
(b) Spring balance (1 score)

9.(a) Anti clockwise direction - As per Ampere's swimming rule) (1 score)

9.(b) A magnetic field is developed around a current carrying conductor. The magnetic needle is deflected as a result of the mutual action of this magnetic field and that around the magnetic needle. (1 score)

10. **(i)** (a) 2A {I= V/R =8/2 = 2A} (1 score)
(b) 4 Ohm {R= V/I = 12/3 = 4 Ohm} (1 score)

10.. **(ii)** When temperature remains constant, the current through a conductor is directly proportional to the potential difference between its ends. (1 score)

Or

When temperature remains constant, the ratio of potential difference to the current is a constant.

From 11 to 15, Answer any 4 questions each carries 3 score.

11.(a) $S = ut + 1/2\ at^2$

$= 0 + 1/2 \times 10 \times (2)^2$

$= 10 \times 2$

$= 20$ m (1 score)

(b) Potential Energy, **U = mgh** = 0.1x10x20 = **20 Joule** (1 score)

(c) **K.E = 1/2mv²** But we know that **$v^2 = u^2 + 2aS$**

ie, $v^2 = 0 + 2 \times 10 \times 20$

$v^2 = 400\ m^2/s^2$

so, K.E = 1/2x 0.1kg x400 m^2/s^2

$= 20\ kg\ m^2/s^2$ (1 score)

= 20 JouIe,

That means, Potential energy is completely converted to Kinetic energy.

12. (a) Resistivity (1 score)

(b) Resistivity of a substance is the resistance of the conductor of unit length and unit area of cross section. (1 score)

(c) Temperature (1 score)

{ The resistivity of a substance is a constant at fixed temperature.}

13. (a) Nebulae (1 score)

{ Stars are born in gaseous clouds in interstellar space known as Nebulae.}

13. (b) The contraction of gas clouds by the gravitational force of attraction in nebulae is the beginning of the birth of stars. Owing to high gravitational attraction, the kinetic energy of the gas cloud increases and heat is produced. This causes fusion in the core. (2 score)

14. (a) A - Papercone (Diaphram); B - Field Magnet (Permanent Magnet) (1 score)

(b) Electrical energy is transformed into Sound energy. (1 score)

Or

{Electrical energy is transformed into magnetic energy and then to mechanical energy, which is then transformed to acoustic energy or Sound energy.}

(c) Motor principle. (1 score)

{ A conductor which can move freely and which is kept in a magnetic field experiences a force when current passes through it.}

15. (a) Magnetic field (1 score)
(b) Force (1 score)
(c) Current (1 score)

From 16 to 20, Answer any 4 questions each carries 4 score.

16.(a) Initial Momentum = 15000 kgm/s {P=mu =1500kg x10 m/s = 15000 kgm/s} (1 score)

16. (b) Final Momentum = Zero [Momentum, P= m*v = 1500kg * 0 = Zero , because final velocity, v = 0] (1 score)

16(c) **Rate of change of Momentum = [(Final Momentum - Initial Momentum)/ Time]**

= (0 - 15000)/5
= - 3000 kgm/s^2
= - 3000 N
(1 score)

Or

Rate of change of Momentum = [m (v -u)]/t

= [1500 *(0 - 10)]/5
= - 15000/5 = **- 3000N**

16 (d) Newton's second law of motion. (1 score)

17. (a) South Pole. (1 score)
{ The end of the solenoid at which current flows in the clockwise direction will be the South Pole }

17.(b) (1) Increase the number of turns (n)
(2) Increase the strength of current flow (I) (2 score)
(3) Increase the area of cross section of the solenoid
4. Use soft iron as the core etc.

17.(c) MCB, Relay Switch etc. (1 score)

18. (a) Myopia or Near-sightedness (1 score)

(b) 1. Due to the elongation of the eyeball. (1 score)

2. Power of the lens may be increased with respect of the eyeball. (1 score)

18. (c) This defect can be overcome by using concave lenses of appropriate focal length. (1 score)

19. (a) 9 Ohm

(**In series** connection, **Effective resistance, R = R1+R2+R3** = 3+3+3 = **9 Ohm**) (1 score)

Or

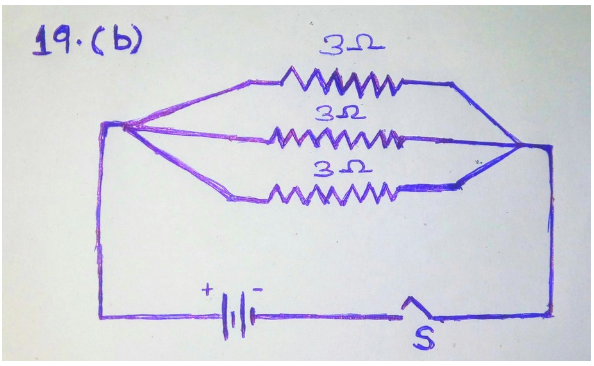
If resistors of the **same value** are connected **in series**, then

Effective resistance, **R = r*n =3 * 3 = 9 Ohm**

19. (b) If resistors of the **same value** are connected **in parallel,** then

Effective resistance, R =r/n =3/3 =1 Ohm .

That means, to get effective resistance of One Ohm, the resistors in the circuit should be rearranged in parallel. (Picturization)



19. **(c) Answer - (iii) & (iv)** (2 score)

Here (iii) is the right answer instead of (i) because resistance of all the resisters are equal hence current through all the resistors are the same.

(i) The current through each resistor is different. (1 score)

(iv) The potential difference across each resistor is the same. (1 score)

20. (4 score)

A	B	C
Geosynchronous Satellite	24 hours	Communication
Main sequence star	H is converted to He	Energy production
Sunspots	Surface of the sun	Strong Magnetic field
Njattuvela	13 -14 days	Thiruvathira

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