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ಕರ್ನಾಟಕ ಪ್ರೌಢ ಶಿಕ್ಷಣ ಪರೀಕ್ಷಾ ಮಂಡಳಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು – 560 003

**KARNATAKA SECONDARY EDUCATION EXAMINATION BOARD, MALLESWARAM,
BANGALORE – 560 003**

ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಪರೀಕ್ಷೆ, ಜೂನ್ — 2019

S. S. L. C. EXAMINATION, JUNE, 2019

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 24. 06. 2019]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Phy)**

Date : 24. 06. 2019]

CODE No. : **83-E (Phy)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ / Physics)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

(ಪುನರಾವರ್ತಿತ ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / Private Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : 100

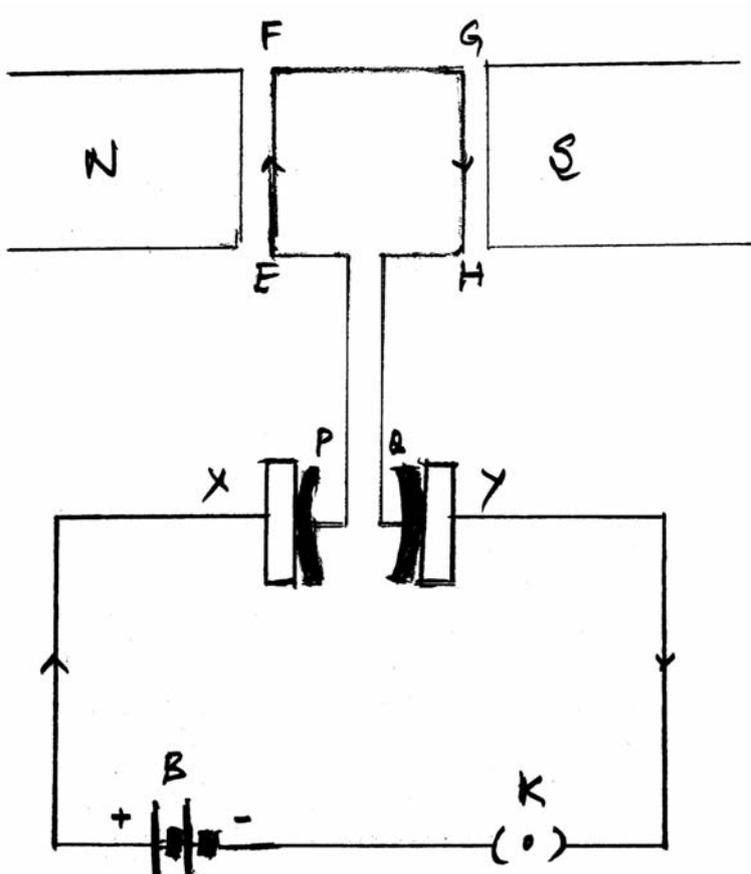
[Max. Marks : 100

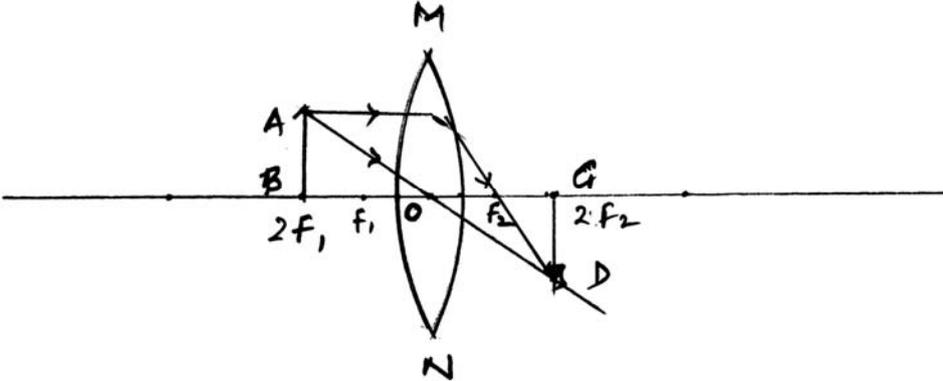
Qn. Nos.	Value Points	Total
4.	Which of the following is ecofriendly ? (A) Thermal power plant (B) Hydropower plant (C) Biogas plant (D) Nuclear power station. Ans. : (C) — Biogas plant	1

 (24)1209-PR(C) (PHY)

[Turn over

Qn. Nos.	Value Points	Total																
11.	<p>The names of devices are given in Column-A and corresponding functions are given in Column-B. Match them and write the answer along with its letters :</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: center; width: 50%;">Column - A</th> <th style="text-align: center; width: 50%;">Column - B</th> </tr> </thead> <tbody> <tr> <td>(A) Commutator</td> <td>(i) detects the presence of electric current in a circuit</td> </tr> <tr> <td>(B) Fuse</td> <td>(ii) converts mechanical energy into electrical energy</td> </tr> <tr> <td>(C) Galvanometer</td> <td>(iii) measures the potential difference</td> </tr> <tr> <td>(D) Electric generator</td> <td>(iv) shows the direction of the motion of the conductor</td> </tr> <tr> <td></td> <td>(v) protects the electrical appliances</td> </tr> <tr> <td></td> <td>(vi) reverses the direction of current</td> </tr> <tr> <td></td> <td>(vii) converts electrical energy into mechanical energy</td> </tr> </tbody> </table> <p><i>Ans. :</i></p> <p>(A) — (vi) reverses the direction of current (B) — (v) protects the electrical appliances (C) — (i) detects the presence of electric current in a circuit (D) — (ii) converts mechanical energy into electrical energy</p>	Column - A	Column - B	(A) Commutator	(i) detects the presence of electric current in a circuit	(B) Fuse	(ii) converts mechanical energy into electrical energy	(C) Galvanometer	(iii) measures the potential difference	(D) Electric generator	(iv) shows the direction of the motion of the conductor		(v) protects the electrical appliances		(vi) reverses the direction of current		(vii) converts electrical energy into mechanical energy	4
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12.	<p>What is the centre of curvature of a spherical mirror ?</p> <p><i>Ans. :</i></p> <p>The reflecting surface of a spherical mirror forms a part of sphere. The centre of this sphere is called the centre of curvature.</p>	1																
15.	<p>What is the function of pupil of the human eye ?</p> <p><i>Ans. :</i></p> <p>The pupil regulates and controls the amount of light entering the eye.</p>	1																

Qn. Nos.	Value Points	Total
	(i) The ability of the eye lens to adjust its focal length is called power of accommodation. 1 (ii) Far point is infinity $\frac{1}{2}$ Near point is 25 cm. $\frac{1}{2}$	2
25.	Draw the diagram of a simple electric motor. Label the following parts : (i) Brushes (ii) Battery. Ans. : <div style="text-align: center;">  <p style="text-align: center;">Electric Motor</p> <p>B : Battery X, Y: Brushes</p> </div>	$1 + \frac{1}{2} + \frac{1}{2}$ 2

Qn. Nos.	Value Points	Total
28.	<p>List the characteristics of a good source of energy.</p> <p>Ans. :</p> <p>(i) It would do a large amount of work per unit volume or mass.</p> <p>(ii) It should be easily available.</p> <p>(iii) It should be easy to store.</p> <p>(iv) It should be easy to transport.</p> <p>(v) It should be economical. (Any four)</p>	<p>$4 \times \frac{1}{2}$</p> <p>2</p>
31.	<p>Draw the ray diagram to show the formation of image by a convex lens when the object is at $2F_1$. (F_1 : principal focus)</p> <p>Ans. :</p> 	<p>2</p>
34.	<p>What is hypermetropia or far-sightedness ? Name the type of lens used to correct it.</p> <p>Ans. :</p> <p>A person with hypermetropia can see distant objects clearly but cannot see nearby objects distinctly.</p> <p>A convex lens of appropriate power is used to correct it.</p>	<p>1</p> <p>1</p> <p>2</p>

Qn. Nos.	Value Points	Total
35.	<p>List the advantages of connecting electrical devices in parallel.</p> <p><i>Ans. :</i></p> <p>Parallel circuit divides the current through the electrical gadgets.</p> <p>When one component fails, the circuit does not break. Hence the remaining components work.</p> <p>This is helpful particularly when each gadget has different resistance and requires different current to operate properly.</p> <p style="text-align: right;">(Any two) 2 × 1</p>	2
38.	<p>Two magnetic field lines do not intersect each other. Why ? In which region of a bar magnet, density of magnetic field lines is maximum ?</p> <p><i>Ans. :</i></p> <p>No two field lines are found to cross each other. If they did, it would mean that at the point of intersection, the compass needle would point towards two directions, which is not possible.</p> <p style="text-align: right;">1</p> <p>At poles of a bar magnet, density of magnetic field lines is maximum. 1</p>	2
41.	<p>Calculate the power of a convex lens of focal length 0.4 m.</p> <p><i>Ans. :</i></p>	

Qn. Nos.	Value Points	Total
47.	<p>A concave lens has focal length 30 cm. At what distance should the object be placed from the lens so that it forms an image at 20 cm from the lens ? Also, find the magnification produced by the lens.</p> <p>Ans. :</p> $\frac{1}{v} - \frac{1}{u} = \frac{1}{f} \quad \frac{1}{2}$ $\therefore \frac{1}{u} = \frac{1}{v} - \frac{1}{f}$ $= \frac{1}{-20} - \frac{1}{-30}$ $= \frac{1}{-20} + \frac{1}{30} \quad \frac{1}{2}$ $= \frac{-3+2}{60}$ $\frac{1}{u} = -\frac{1}{60} \quad \frac{1}{2}$ $\therefore u = -60$ $\therefore \text{Object distance is 60 cm} \quad \frac{1}{2}$ <p>Magnification : $m = \frac{v}{u}$ $\frac{1}{2}$</p> $= \frac{-20}{-60}$ $= \frac{1}{3} \quad \frac{1}{2}$ <p>$m \approx 0.33.$</p>	3

Qn. Nos.	Value Points	Total
50.	<p>(i) Define electric potential difference. How is ammeter connected in an electric circuit ?</p> <p>(ii) Explain the application of heating effect of electric current in an electric bulb and the fuse used in an electric circuit.</p> <p style="text-align: center;">OR</p> <p>(i) State Ohm's law</p> <p>(ii) Explain the factors on which the resistance of a conductor depend.</p> <p><i>Ans. :</i></p> <p>(i) Electric potential difference between two points in an electric circuit carrying some current is defined as the work done to move a unit charge from one point to the other. 1</p> <p>An ammeter is always connected in series in a circuit through which the current is to be measured. 1</p> <p>(ii) A strong metal with high melting point like tungsten which gets very hot and emits light is used in an electric bulb. 1</p> <p>If a current larger than the specified value flows through the circuit then the fuse melts and breaks the circuit. 1</p> <p style="text-align: center;">OR</p>	4

Qn. Nos.	Value Points	Total
	(i) <i>Ohm's law</i> : The potential difference V , across the ends of a given metallic wire in an electric circuit is directly proportional to the current flowing through it, provided its temperature remains the same.	1
	(ii) The resistance of a conductor depends on the following factors : <ul style="list-style-type: none"> ★ length of the conductor ★ area of cross-section ★ nature of the material ★ temperature. (Any two) $2 \times \frac{1}{2} = 1$ Resistance is directly proportional to length of the conductor. Resistance is inversely proportional to the area of cross-section.	1 1 4