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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]

Date : 24. 06. 2019]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Phy)**

CODE NO. : 83-E (Phy)

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ / **Physics**)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

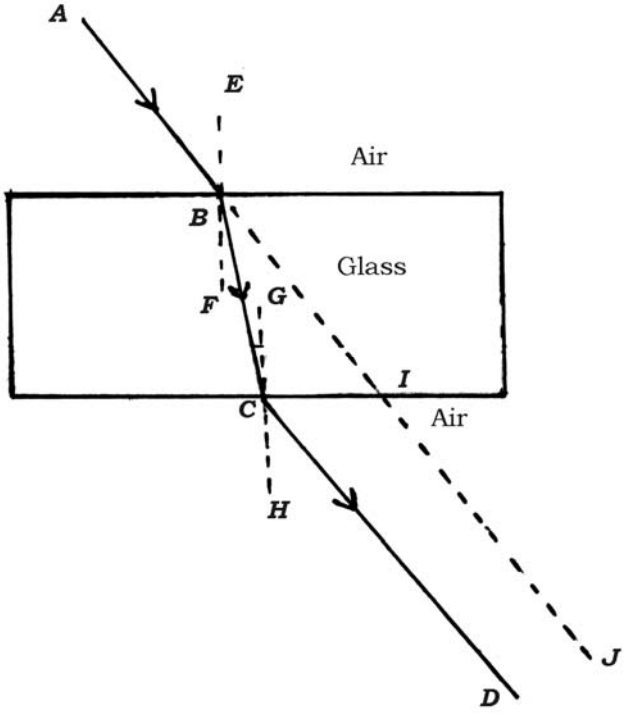
(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : **80**

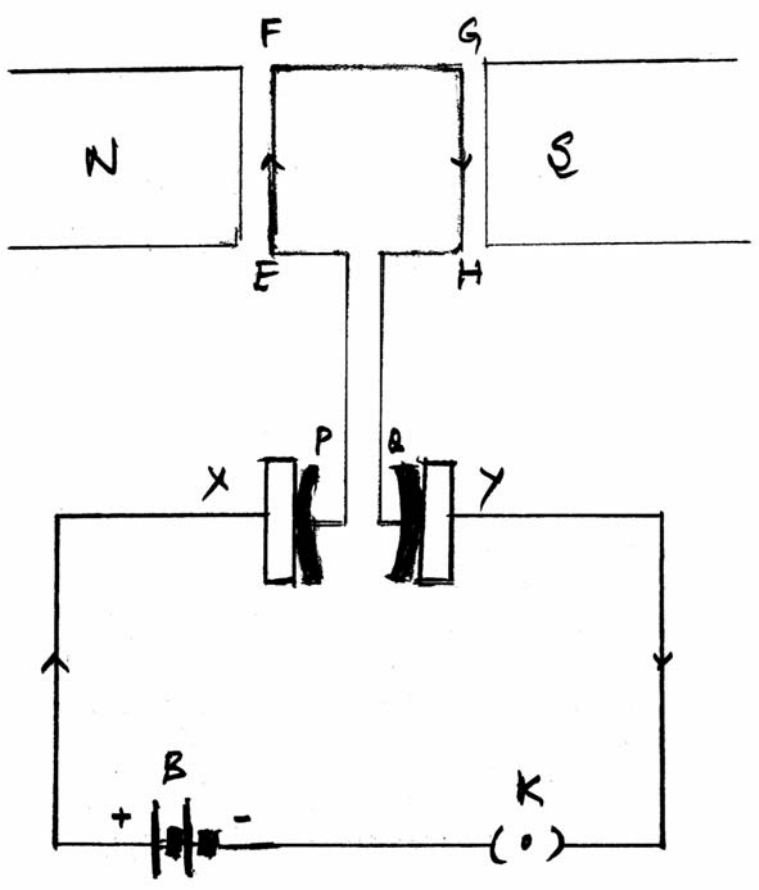
[Max. Marks : 80

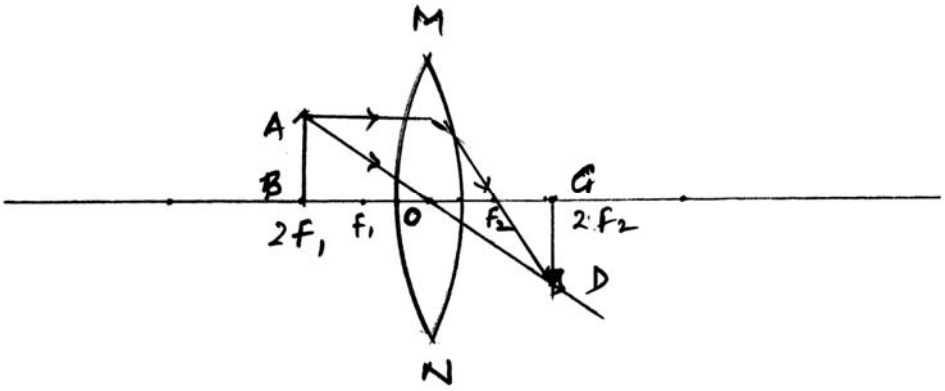
Qn. Nos.	Value Points	Total
4.	Which of the following is ecofriendly ? (A) Thermal power plant (B) Hydropower plant (C) Biogas plant (D) Nuclear power station. *Ans.* : (C) — Biogas plant	1

Qn. Nos.	Value Points	Total
7.	Identify the emergent ray in the given figure.  (A) CD (B) BC (C) AB (D) IJ. *Ans.* : (A) — CD	1
9.	A piece of metallic wire of resistance R is cut into 3 equal parts. These parts are then connected in parallel. If the total resistance of this combination is R^{l}, then the value of $R : R^{l}$ is (A) 1 : 3 (B) 9 : 1 (C) 1 : 9 (D) 3 : 1. *Ans.* : (B) — 9 : 1	1

Qn. Nos.	Value Points	Total
11.	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 : ***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 *Ans.* : (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 4×1	4
12.	What is the centre of curvature of a spherical mirror ? *Ans.* : The reflecting surface of a spherical mirror forms a part of sphere. The centre of this sphere is called the centre of curvature.	1
15.	What is the function of pupil of the human eye ? *Ans.* : The pupil regulates and controls the amount of light entering the eye.	1

Qn. Nos.	Value Points	Total
19.	A bulb is marked 220 V and 40 W. Calculate the current flowing through the bulb and it's resistance. *Ans.* : $I = \frac{P}{V}$ $\frac{1}{2}$ $= \frac{40}{220}$ $I = \frac{2}{11}$ A (OR 0·18 A) $\frac{1}{2}$ $R = \frac{V}{I}$ $\frac{1}{2}$ $= \frac{220}{\frac{2}{11}}$ $= \frac{220 \times 11}{2}$ R = 1210 Ω (OR 1222 Ω) $\frac{1}{2}$	2
22.	(i) What is Tyndall effect ? (ii) Name the colour that bends the least and the colour that bends the most when white light is dispersed by a prism. OR (i) What is meant by the power of accommodation of the eye ? (ii) What are the far point and near point of the human eye with normal vision ? *Ans.* : (i) The phenomenon of scattering of light by the colloidal particles is called Tyndall effect. 1 (ii) Red colour bends the least $\frac{1}{2}$ Violet colour bends the most. $\frac{1}{2}$ OR	2

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. :  Electric Motor	
	B : Battery	
	X, Y : Brushes $1 + \frac{1}{2} + \frac{1}{2}$	2

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

Qn. Nos.	Value Points	Total
37.	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.	
	Ans. :	
	$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$ $\frac{1}{2}$	
	$\therefore \quad \frac{1}{u} = \frac{1}{v} - \frac{1}{f}$	
	$= \frac{1}{-20} - \frac{1}{-30}$	
	$= \frac{1}{-20} + \frac{1}{30}$ $\frac{1}{2}$	
	$= \frac{-3+2}{60}$	
	$\frac{1}{u} = -\frac{1}{60}$ $\frac{1}{2}$	
	$\therefore \quad u = -60$	
	$\therefore$ Object distance is 60 cm $\frac{1}{2}$	
	Magnification : $m = \frac{v}{u}$ $\frac{1}{2}$	
	$= \frac{-20}{-60}$	
	$= \frac{1}{3}$ $\frac{1}{2}$	
	$m \simeq 0{\cdot}33.$	3

Qn. Nos.	Value Points	Total
40.	(i) Define electric potential difference. How is ammeter connected in an electric circuit ? (ii) Explain the application of heating effect of electric current in an electric bulb and the fuse used in an electric circuit. OR (i) State Ohm's law (ii) Explain the factors on which the resistance of a conductor depend. *Ans.* : (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 An ammeter is always connected in series in a circuit through which the current is to be measured. 1 (ii) A strong metal with high melting point like tungsten which gets very hot and emits light is used in an electric bulb. 1 If a current larger than the specified value flows through the circuit then the fuse melts and breaks the circuit. 1 OR (i) *Ohm's law* : 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 : ★ 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. 1 Resistance is inversely proportional to the area of cross-section. 1	4 4