

CCE PF
CCE PR

ಕರ್ನಾಟಕ ಪ್ರೌಢ ಶಿಕ್ಷಣ ಪರಿಷತ್, ಮಂಡಲಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು – 560 003

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

ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಪರೀಕ್ಷೆ, ಮಾರ್ಚ್ / ಏಪ್ರಿಲ್ – 2017

S. S. L. C. EXAMINATION, MARCH/APRIL, 2017

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 07. 04. 2017]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Phy)**

Date : 07. 04. 2017]

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

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ / Physics)

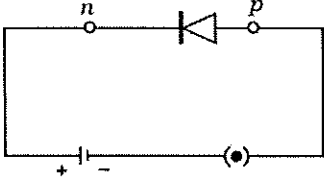
(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

(ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ + ಪುನರಾವರ್ತಿತ ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / Private Fresh + Private Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : 100

[Max. Marks : 100

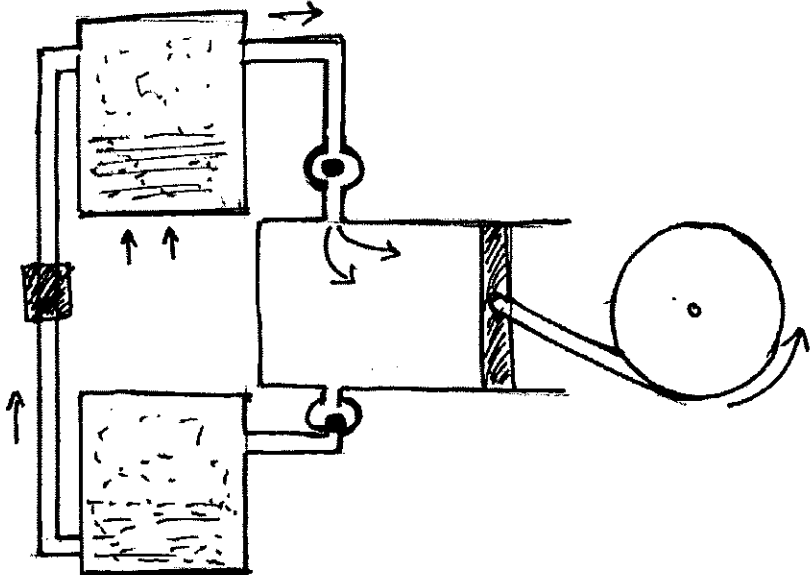
Qn. Nos.	Value Points	Total
1.	The energy conversion based on the principle of photovoltaic effect is Ans. : (C) — solar energy into electrical energy	1
4.	The technique used to track aircraft is Ans. : (D) — Radar	1
7.	A diode is connected in a circuit as shown in the figure. The correct statement related to this figure is 	1

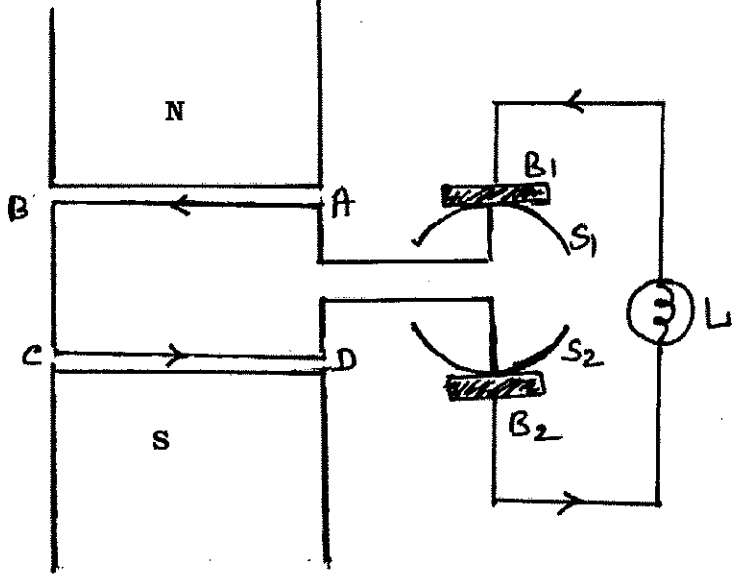
PF+PR-V-523 (PHY)

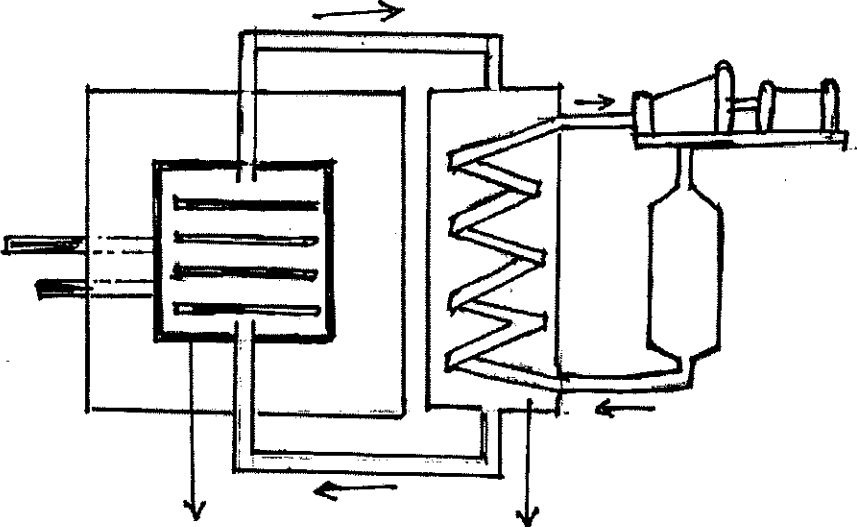
[Turn over

Qn. Nos.	Value Points	Total
11.	<p>The devices are given in Column-A and their uses are given in Column-B. Match them and write the answer along with its letters :</p> <p>Ans. :</p> <p>(A) — (iv) In thermal power station to produce alternate current 1</p> <p>(B) — (i) Stepping up the A.C. voltage to transport electricity to distant places 1</p> <p>(C) — (vii) In devices like toys, tape-recorders etc. 1</p> <p>(D) — (iii) In discharge tube experiments to obtain very high D.C. voltage from a low D.C. voltage 1</p>	4
12.	<p>What is geothermal energy ?</p> <p>Ans. : The energy trapped within 10 km of earth's crust.</p>	1
19.	<p>Boy A argues that light wave is a transverse wave. Boy B argues that it is an electromagnetic wave. Whose argument is correct ? Justify your answer scientifically.</p> <p>Ans. :</p> <p>Both are correct. 1</p> <p>Because the light waves are associated with electric field and magnetic field / these waves require no material medium for their propagation. (any one) $\frac{1}{2}$</p> <p>Light waves are transverse waves because particles of the medium vibrate in the direction perpendicular to the direction of wave propagation. $\frac{1}{2}$</p>	2
22.	<p>Write any two differences between diesel engine and petrol engine.</p> <p style="text-align: center;">OR</p> <p>Give any four reasons to decide that internal combustion engines are advantageous over steam engines.</p> <p>Ans. :</p> <p><i>Diesel engine :</i></p> <p>i) Spark plug is not required</p> <p>ii) Diesel is used as fuel</p> <p>iii) Expansion against constant pressure</p> <p>iv) Efficiency is more</p> <p>v) Pollution intensity is high</p> <p>vi) The cost of diesel is comparatively less</p> <p>vii) There is no carburettor.</p>	

Qn. Nos.	Value Points	Total
	<p><i>Petrol engine :</i></p> <p>i) Requires spark plug ii) Petrol is used as fuel iii) Expansion of gaseous products with high impulse iv) Efficiency is less v) Pollution intensity is low vi) The cost of petrol is comparatively high vii) Carburettor is present. (Any two only) 1 + 1</p> <p style="text-align: center;">OR</p> <p>In internal combustion engine —</p> <p>i) Efficiency is high ii) Engine can start instantly iii) They are small in size iv) Used in light vehicle / heavy vehicle v) No fear of explosion vi) Less fuel wastage. (Any four only) $4 \times \frac{1}{2}$</p>	2
25.	<p>A man is standing between hill A and hill B, claps louder. He hears an echo after 4 seconds from hill A and after 6 seconds from hill B. The speed of sound in air is 340 ms^{-1}. Calculate the distance between the two hills.</p> <p>Ans. :</p> <p>Distance from A, $d_1 = \frac{v \times t_1}{2} = \frac{340 \times 4}{2} = 680 \text{ m}$ $\frac{1}{2}$</p> <p>Distance from B, $d_2 = \frac{v \times t_2}{2} = \frac{340 \times 6}{2} = 1020 \text{ m}$ $\frac{1}{2}$</p> <p>\therefore Distance from A to B = $d_1 + d_2$ $= 680 + 1020$ $= 1700 \text{ m.}$ 1</p> <p style="text-align: center;">OR</p> <p>Total time that sound travelled</p> <p style="text-align: center;">$t = t_1 + t_2$ $= 4 + 6$ $= 10 \text{ s.}$ 1</p> <p>\therefore Distance from A to B = $\frac{v \times t}{2}$ $= \frac{340 \times 10}{2}$ $= 1700 \text{ m.}$ 1</p>	2

Qn. Nos.	Value Points	Total
28.	Draw the diagram showing the expansion stroke of steam engine. Ans. :	
		2
31.	What is superconductivity ? Mention any two uses of superconductors.	
	OR	
	What is a transistor ? Mention any two uses of transistor.	
	Ans. :	
	The property by virtue of which certain materials show almost zero resistance at a very low temperature	1
	Uses — i) In powerful electromagnets	
	ii) In microwave devices	
	iii) In magnetic resonance imaging (MRI)	
	(Any two only)	$\frac{1}{2} + \frac{1}{2}$
	OR	
	Transistor is a three terminal semi-conductor device	1
	Uses — i) In amplifiers	
	ii) In oscillators	
	iii) In switching circuits.	
	(Any two only)	$\frac{1}{2} + \frac{1}{2}$

Qn. Nos.	Value Points	Total
35.	<p>Mention the four stages of working of a petrol engine.</p> <p>Ans. :</p> <p>i) Intake stroke</p> <p>ii) Compression stroke</p> <p>iii) Expansion stroke</p> <p>iv) Exhaust stroke.</p> <p style="text-align: right;">$4 \times \frac{1}{2}$</p>	2
38.	<p>Draw the diagram of a D.C. dynamo.</p> <p>Ans. :</p>  <p style="text-align: right;">2</p>	2
41.	<p>What is orbital velocity ? Write the relation between orbital velocity and escape velocity.</p> <p>Ans. :</p> <p>The velocity of the satellite along a circular path is called the orbital velocity.</p> <p style="text-align: right;">1</p> <p>Escape velocity = $\sqrt{2}$. orbital velocity</p> $v_e = \sqrt{2} . v_o.$ <p style="text-align: right;">1</p>	2

Qn. Nos.	Value Points	Total
45.	<p>Draw the diagram of a nuclear power reactor and label the following parts.</p> <p>(a) Reflector (b) Heat exchanger.</p> <p>Ans. :</p>  <p>Reflector Heat exchanger</p> <p>Two parts : $\frac{1}{2} + \frac{1}{2}$</p>	<p>2</p> <p>3</p>
50.	<p>(a) Write the evolutionary stages of the sun like star. Explain the last stage.</p> <p>(b) Why rockets have to carry oxidizer along with the fuel ?</p> <p style="text-align: center;">OR</p> <p>(a) Explain Big Bang theory.</p> <p>(b) What are Geostationary satellites ? Why are they called communication satellites ?</p> <p>Ans. :</p> <p>a) i) Protostar ii) Steady state iii) Red Giant iv) White dwarf.</p>	<p>$4 \times \frac{1}{2}$</p>

Qn. Nos.	Value Points	Total
	<p><i>White dwarf :</i></p> <p>i) The star after losing the planetary Nebula, collapses under gravity. $\frac{1}{2}$</p> <p>ii) Due to very high temperature, the star glows with white light of high frequency becomes white dwarf. $\frac{1}{2}$</p> <p>b) Because the rocket has to operate in the outer space where there is no availability of oxygen for burning of fuel. 1</p> <p style="text-align: center;">OR</p> <p>a) Everything what we have in the universe was once concentrated in a very small, hot place called "Primordial Fire Ball". 1</p> <p>Something triggered and the fire ball exploded with a bang and the matter in it was thrown away with tremendous speed. 1</p> <p>b) The artificial satellites that are launched so that they remain in fixed positions relative to the earth at a specific height above the equator. 1</p> <p style="text-align: center;">OR</p> <p>The period of revolution of the satellite is same as the period of rotation of the earth.</p> <p>These satellites provide relay facilities for international communication. These satellites can connect any part of the globe to any other part of the globe. 1</p>	4
		4