CCE RF
CCE RR

ಕರ್ನಾಟಕ ಪ್ರೌಢ ಶಿಕ್ಷಣ ಪರೀಕ್ಷಾ ಮಂಡಳಿ, 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)

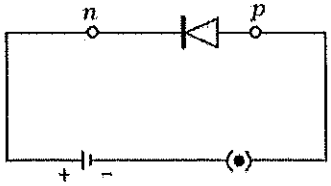
(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ + ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Fresh + Regular Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

[ಗರಿಷ್ಠ ಅಂಕಗಳು : **80**

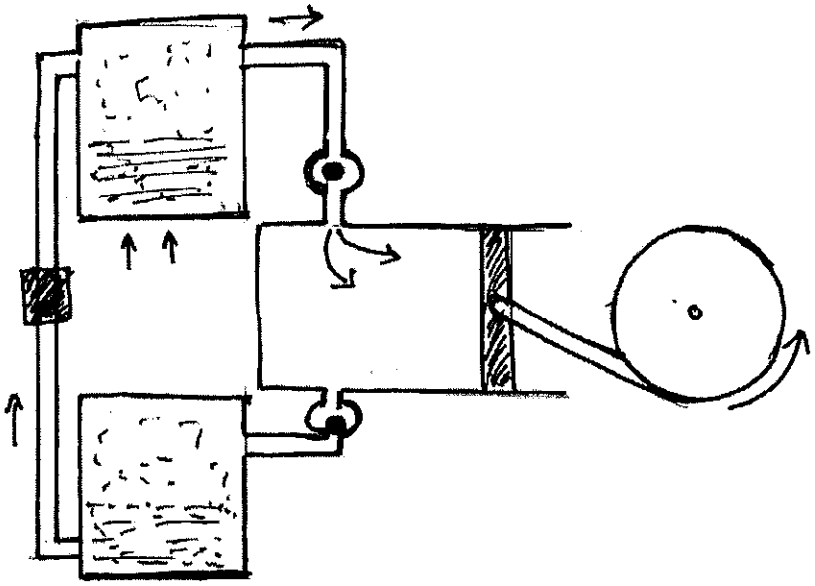
[Max. Marks : 80

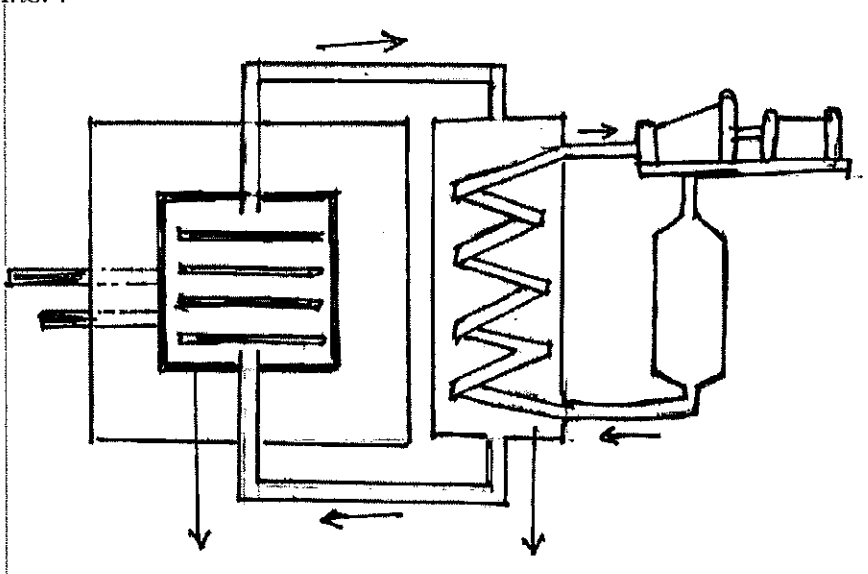
Qn. Nos.	Value Points	Total
1.	The energy conversion based on the principle of photovoltaic effect is *Ans.* : (C) — solar energy into electrical energy	1
4.	The technique used to track aircraft is *Ans.* : (D) — Radar	1
7.	A diode is connected in a circuit as shown in the figure. The correct statement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

Qn. Nos.	Value Points	Total
11.	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 : *Ans.* : (A) — (iv) In thermal power station to produce alternate current 1 (B) — (i) Stepping up the A.C. voltage to transport electricity to distant places 1 (C) — (vii) In devices like toys, tape-recorders etc. 1 (D) — (iii) In discharge tube experiments to obtain very high D.C. voltage from a low D.C. voltage 1	4
12.	What is geothermal energy ? *Ans.* : The energy trapped within 10 km of earth's crust.	1
19.	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. *Ans.* : Both are correct. 1 Because the light waves are associated with electric field and magnetic field / these waves require no material medium for their propagation. (any *one*) $\frac{1}{2}$ Light waves are transverse waves because particles of the medium vibrate in the direction perpendicular to the direction of wave propagation. $\frac{1}{2}$	2

Qn. Nos.	Value Points	Total
22.	Write any two differences between diesel engine and petrol engine. **OR** Give any four reasons to decide that internal combustion engines are advantageous over steam engines. *Ans.* : *Diesel engine* : i) Spark plug is not required ii) Diesel is used as fuel iii) Expansion against constant pressure iv) Efficiency is more v) Pollution intensity is high vi) The cost of diesel is comparatively less vii) There is no carburettor. *Petrol engine* : 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 OR In internal combustion engine — 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) $4 \times \frac{1}{2}$	2 2

Qn. Nos.	Value Points		Total
25.	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.		
	Ans. :		
	Distance from *A*, $d_1 = \frac{v \times t_1}{2} = \frac{340 \times 4}{2} = 680$ m	$\frac{1}{2}$	
	Distance from *B*, $d_2 = \frac{v \times t_2}{2} = \frac{340 \times 6}{2} = 1020$ m	$\frac{1}{2}$	
	$\therefore$ Distance from *A* to *B* = $d_1 + d_2$		
	= 680 + 1020		
	= 1700 m.	1	2
	OR		
	Total time that sound travelled		
	$t = t_1 + t_2$		
	= 4 + 6		
	= 10 s.	1	
	$\therefore$ Distance from *A* to *B* = $\frac{v \times t}{2}$		
	= $\frac{340 \times 10}{2}$		
	= 1700 m.	1	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) $\frac{1}{2}+\frac{1}{2}$	2 2

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

Qn. Nos.	Value Points	Total
	White dwarf:	
	i) The star after losing the planetary Nebula, collapses under gravity. $\frac{1}{2}$	
	ii) Due to very high temperature, the star glows with white light of high frequency becomes white dwarf. $\frac{1}{2}$	
	b) Because the rocket has to operate in the outer space where there is no availability of oxygen for burning of fuel. 1	4
	OR	
	a) Everything what we have in the universe was once concentrated in a very small, hot place called "Primordial Fire Ball". 1	
	Something triggered and the fire ball exploded with a bang and the matter in it was thrown away with tremendous speed. 1	
	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	
	OR	
	The period of revolution of the satellite is same as the period of rotation of the earth.	
	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	4