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, ಜೂನ್ — 2017

S. S. L. C. EXAMINATION, JUNE, 2017

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 21. 06. 2017] ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Phy)**

Date : 21. 06. 2017] **CODE NO. : 83-E (Phy)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ / **Physics**)

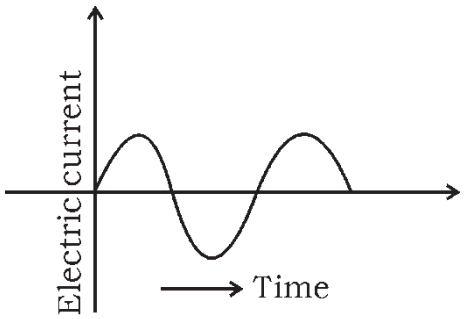
(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

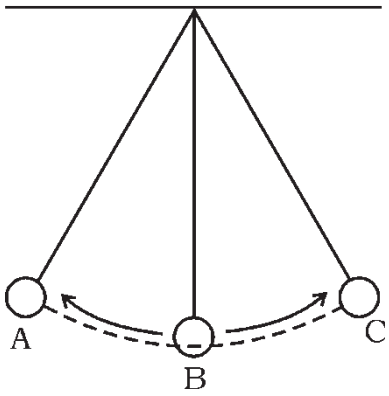
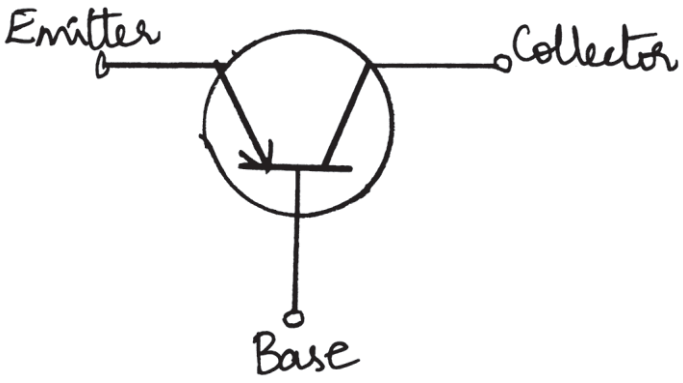
(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

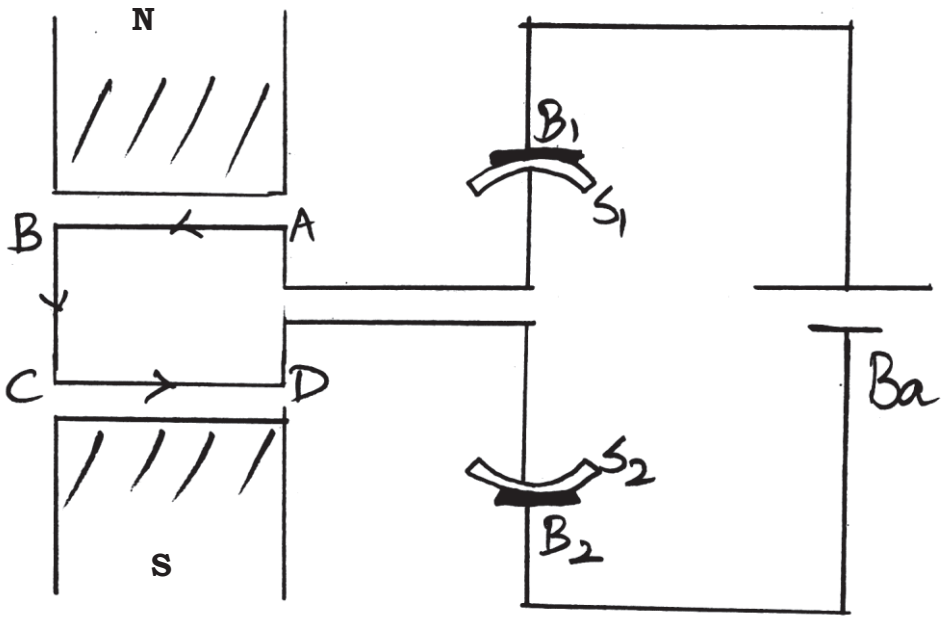
[ಗರಿಷ್ಠ ಅಂಕಗಳು : 80

[Max. Marks : 80

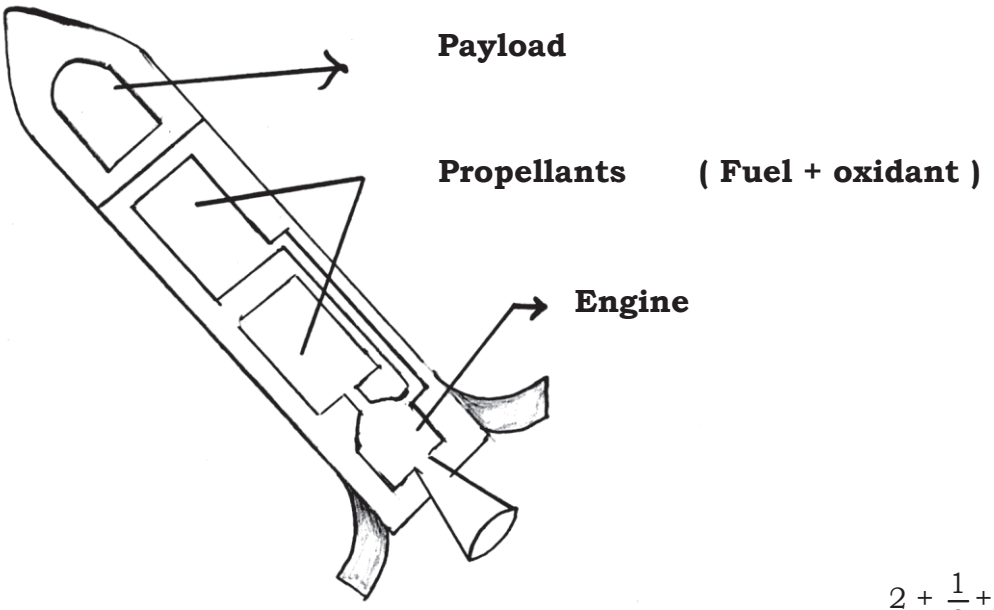
Qn. Nos.	Value Points	Total
2.	When the source of the sound is moving away from the observer, the observer feels the sound to be of lower frequency because, *Ans.* : (C) the waves behind the source of sound are farther apart	1
6.	Identify the graph of alternating current in the following :  *Ans.* : (A)	1

Qn. Nos.	Value Points	Total
8.	The main feature of the red giant stage of a star is *Ans.* : (D) the star swells, loss of radiation takes place, the temperature decreases	1
10.	The motion of a simple pendulum is shown in the figure. Identify the correct statement related to this figure.  *Ans.* : (C) The pendulum has maximum potential energy at the points *A* and *C*	1
13.	What are mechanical waves ? *Ans.* : Wave passes through matter. *OR* The waves which require a material medium for their propagation.	1
16.	Draw the circuit symbol of *p-n-p* transistor. *Ans.* :  	1

Qn. Nos.	Value Points	Total
17.	If an A.C. source of 220 volts has to be stepped down to 10 volts, then calculate the turns ratio of the primary coil and secondary coil. *Ans.* : $\frac{V_S}{V_P} = \frac{N_S}{N_P}$ *OR* $\frac{V_P}{V_S} = \frac{N_P}{N_S}$ $\frac{1}{2}$ $\frac{10}{220} = \frac{N_S}{N_P}$ $\frac{220}{10} = \frac{N_P}{N_S}$ $N_P : N_S = 22 : 1$ $\frac{1}{2}$	1
24.	Mention the differences between *n*-type and *p*-type semiconductors. *OR* Mention the differences between intrinsic semiconductors and extrinsic semiconductors. *Ans.* : *n-type semiconductors* / *p-type semiconductors* ★ They are obtained by adding pentavalent impurities like Sb and As. / ★ They are obtained by adding trivalent impurities like gallium and Indium. 1 ★ Electrons are more in number. / ★ Holes are more in number. 1 ★ Conduction takes place by majority charge carrier electrons & minority charge carrier holes. / ★ Conduction takes place by majority charge carrier holes & minority charge carrier electrons. (Any two) *OR*	2

Qn. Nos.	Value Points	Total
	Intrinsic semiconductors / *Extrinsic semiconductors* ★ They are the crystals of pure elements like germanium and silicon. / ★ They are obtained by adding impurities in small quantities to pure semi-conductors. — 1 ★ The number of electrons is equal to the number of holes. / ★ The numbers of electrons and holes are not equal. — 1	2
27.	Draw the diagram of a D.C. motor. *Ans.* :  	2
28.	Explain the working of SONAR. *OR* Explain the working of an ultrasound scanner. *Ans.* : Sonar consists of a transmitter and a detector. The transmitter produces and transmits ultrasonic waves. $\frac{1}{2}$	2

Qn. Nos.	Value Points	Total
	Ultrasonic waves travel through water until they strike an object and reflected. $\frac{1}{2}$ The detector senses then and converts them into electrical signals. $\frac{1}{2}$ The distance of the object is calculated by recording the time interval between transmission & reception. *OR* $d = \frac{V \times t}{2}$ $\frac{1}{2}$	2
	OR	
	★ Lubricating jelly is put on the skin to make the probe and the body in contact. $\frac{1}{2}$ ★ The probe is connected by the wire to the ultrasound machine & monitor. $\frac{1}{2}$ ★ The ultrasound bounces back from the different organs of the body, when they are sent from the probe. $\frac{1}{2}$ ★ This is detected by the probe and sent to the ultrasound machine & the picture is displayed in the monitor. $\frac{1}{2}$	2
31.	Name the reaction that causes enormous amount of energy in the sun. Mention the two uses of solar cells. *Ans.* : Thermonuclear fusion reaction. 1 Solar cells are used in . traffic signals $\frac{1}{2}$. streetlights $\frac{1}{2}$. pumping water (Any two)	2

Qn. Nos.	Value Points	Total
35.	Draw the diagram of a single stage rocket and label the parts. *Ans.* :  $2 + \frac{1}{2} + \frac{1}{2}$	3
37.	(a) The element uranium which is used in the nuclear power reactor is enriched. Why ? (b) Explain the function of control rods and moderator in a nuclear power reactor. *OR* (a) $_{92}U^{235} + {}_0n^1 \rightarrow {}_{56}Ba^{142} + {}_{36}Kr^{91} + 3\,{}_0n^1$ + Energy. This reaction is called nuclear fission reaction. What is the reason ? (b) List the effects of harmful radiations arising from the nuclear power reactor. Explain the measure to get protection from these radiations. *Ans.* : (a) Naturally occurring uranium contains very less amount of fissionable uranium ($_{92}U^{235}$) $\frac{1}{2}$ This uranium is enriched to make it fissionable in nuclear power reactor. $\frac{1}{2}$ (b) Control rods absorb neutrons. $\frac{1}{2}$ Nuclear reactors can also be shut off by inserting the rods sufficiently deep. $\frac{1}{2}$ Moderator slows down neutrons emitted in the fission process. 1 *OR*	3

Qn. Nos.	Value Points	Total
	(a) The heavy element Uranium is hit by neutron in this reaction. $\frac{1}{2}$ It is split into two medium sized (lighter) elements. Hence this reaction is a nuclear fission reaction. $\frac{1}{2}$ (b) ★ It may cause cancer. $\frac{1}{2}$ ★ It causes mutation in the living cells. $\frac{1}{2}$ Covering nuclear power reactors by thick wall of concrete which has thick layers of lead. $\frac{1}{2}$ The radioactive matter is impregnated in glass slabs and kept in steel containers and disposed in deep sea. $\frac{1}{2}$	3
40.	(a) Explain the expansion stroke and exhaust stroke of a petrol engine. (b) Name the stroke of a diesel engine in which diesel in the form of micelles is injected into the cylinder. *Ans. :* (a) *Expansion stroke.* ★ The fuel burns quickly producing heat. $\frac{1}{2}$ ★ Gaseous products such as carbon dioxide, carbon monoxide and water vapour are formed. $\frac{1}{2}$ ★ The gaseous products expand suddenly. $\frac{1}{2}$ ★ Piston is pushed outwards with great force. $\frac{1}{2}$ *Exhaust stroke :* ★ The outlet valve opens. Piston moves back. $\frac{1}{2}$ ★ The products of combustion gases are pushed out of the cylinder through the exhaust valve. $\frac{1}{2}$ (b) Compression stroke. 1	4