

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 — 2015

S. S. L. C. EXAMINATION, JUNE, 2015

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 17. 06. 2015]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Phy.)**

Date : 17. 06. 2015]

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

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ / Physics)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / New Syllabus)

(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

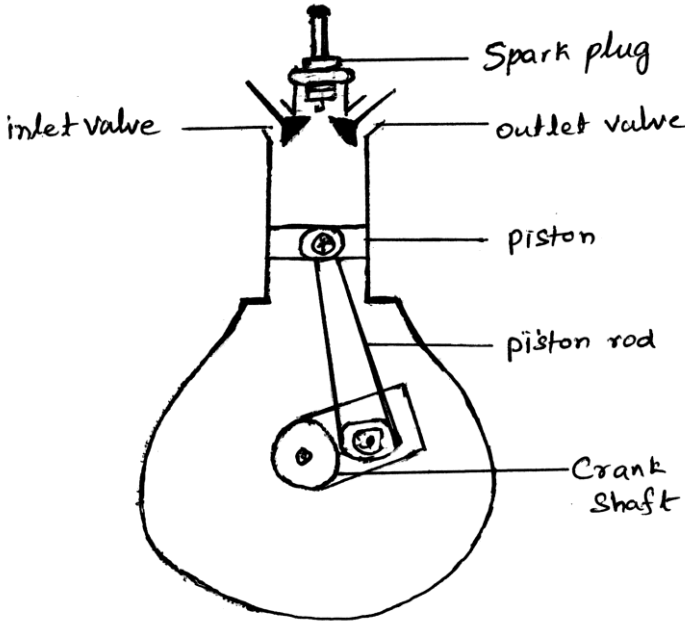
[ಪರಮಾವಧಿ ಅಂಕಗಳು : 80

[**Max. Marks : 80**

Qn. Nos.	Value Points	Total
1.	The solar device used in traffic signal light works on the following principle. Ans. : (C) — Photovoltaic effect	1
4.	In which of the following doped semi-conductors majority of charge carriers are holes ? Ans. : (B) — Boron doped with silicon	1
10.	In a transformer the number of turns in the primary coil is 200 and secondary coil is 600. The ratio between the electric current in the primary and secondary respectively is Ans. : (D) — 3 : 1.	1
13.	“A conductor carrying electric current experiences a mechanical force if kept in a magnetic field.” Which device works on this principle ? Ans. : Motor	1

**RR-114**

[Turn over

Qn. Nos.	Value Points	Total
15.	What is electroplating ? Ans. : Coating a costly metal over a cheaper one to increase the durability and look of the cheaper metal.	1
20.	Draw the diagram of a petrol engine and label the parts. Ans. : 	2
21.	The frequency of a sound wave is 256 Hz and its wavelength is 1.2 m. Calculate its wave velocity. Ans. : $n = 256 \text{ Hz}$ $\lambda = 1.2 \text{ m}$ $V = n \times \lambda$ $V = 256 \times 1.2 = 307.2 \text{ m/s}$	$\frac{1}{2}$ $\frac{1}{2}$ 1
23.	Write the disadvantages of a steam engine. Ans. : i) The bulky size and the heavy weight of the engine is not suitable for small vehicles. ii) The efficiency is less iii) There is more loss of heat iv) Engine cannot start instantly v) Fuel is wasted (not economical)	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

(any four)

Qn. Nos.	Value Points	Total
27.	<p>On what factors does the induced electromotive force depend ?</p> <p>Ans. :</p> <p>i) The number of turns of the coil.</p> <p>ii) The strength of the magnetic field.</p> <p>iii) The speed with which the magnet or the coil moves.</p> <p>iv) Area of the coil.</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
29.	<p>A diode allows the electric current to flow, when it is in forward bias, but if it is in reverse bias it will not allow the electric current to flow. Why ?</p> <p>Ans. :</p> <p>The external voltage overcomes the junction potential and provides an easy path for the flow of charges across the junction due to least resistance.</p> <p>In reverse biasing the charge carriers are repelled from the junction offering high resistance.</p>	1 1
39.	<p>How does an ultrasound scanner work ? Explain. Write one use of it.</p> <p style="text-align: center;">OR</p> <p>How does a Sonar work ? Explain. Mention its uses.</p> <p>Ans. :</p> <ul style="list-style-type: none"> ★ The operator places a probe over the part of the body to be examined. ★ Lubricating jelly is put on the skin. ★ The ultrasound machine and monitor is connected to the probe by the wire. Probe sends ultrasound pulses to the part of the body to be examined. ★ The ultrasound bounces back from the various structures in the body depending on the tissue thickness. These impulses will be displayed in the form of a picture on the monitor. (any two) <p>Uses : i) Internal organs like bladders, kidneys, ovaries, pancreas can be obtained without disturbing the body.</p> <p>ii) To examine heart and foetus during pregnancy to study the growth. (any one)</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ★ The transmitter produces and transmits ultrasonic waves. ★ These waves travel through water until they strike the object. ★ They get reflected and reaches the receiver in the Sonar ★ It converts the ultrasonic waves into electric signals which are interpreted. <p>Uses : i) To find the depth of the sea.</p> <p>ii) To identify the under water objects like submarines, hills, rocks etc. (any two)</p>	3 1 1 1



Qn. Nos.	Value Points	Total
40.	<p>(a) Black holes are invisible. Why ? How are they identified ?</p> <p>(b) How do multistage rockets differ from single stage rocket ? Explain.</p> <p style="text-align: center;">OR</p> <p>(a) Write the mathematical equation to calculate orbital velocity of a satellite. Write the meanings of the symbols used.</p> <p>(b) Explain how a protostar is formed.</p> <p><i>Ans. :</i></p> <p>a) This is because its gravity is so high ; that even light cannot escape from it. No information in the form of light or radio waves comes out of it.</p> <p>A black hole can be recognized by its properties like density and gravity.</p> <p>b) i) By using a multistage rocket the fuel consumption can be reduced.</p> <p>ii) A single stage rocket cannot push the satellite to a great height therefore multistage rockets are used for this purpose.</p> <p>iii) Multistage rocket's efficiency is more than that of single stage rocket.</p> <p>iv) The mass of the rocket (multistage) is reduced.</p> <p style="text-align: center;">OR</p> <p>a) $V_o = \sqrt{\frac{GM}{(R+h)}}$</p> <p>$G$ = Gravitation constant M = Mass of the earth R = Radius of the earth h = Orbit of the satellite.</p> <p>b) ★ Mostly rarefied hydrogen exists in space. These gaseous clouds contract due to their own gravity. As the clouds contract there will be increase in density which in turn leads to increase in pressure</p> <p>★ Gradually there will be aggregation of matter with the spherical mass at the centre of the cloud, the sphere formed at the centre is called protostar.</p>	<p>1</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>1</p> <p>1</p>