

ಕರ್ನಾಟಕ ಪ್ರೌಢ ಶಿಕ್ಷಣ ಪರೀಕ್ಷಾ ಮಂಡಳಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು – 560 003

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

ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ. ಪರೀಕ್ಷೆ, ಜೂನ್ — 2014

S. S. L. C. EXAMINATION, JUNE, 2014

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ದಿನಾಂಕ : 18. 06. 2014]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

Date : 18. 06. 2014]

CODE NO. : 83-E

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನಶಾಸ್ತ್ರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ / **Physics, Chemistry & Biology**)

(**English Version**)

[ಪರಮಾವಧಿ ಅಂಕಗಳು : **100**

[**Max. Marks : 100**

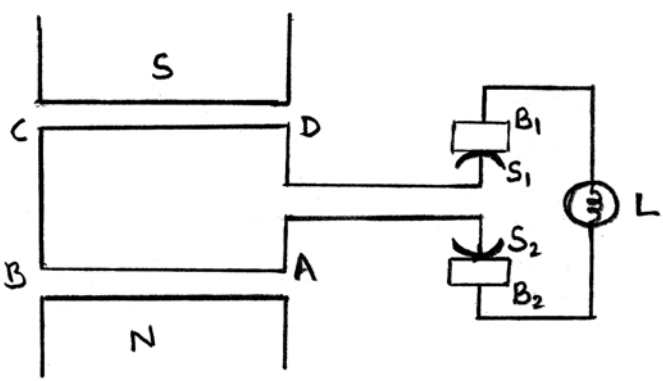
Qn. Nos.	Ans. Key	Value Points	Marks allotted	Total
1.	A	Froth flotation	1	
2.	C	petrol engine can be manufactured in various sizes	1	
3.	A	Magnesium	1	
4.	C	gets forward and reverse biased periodically	1	
5.	D	M kg	1	
6.	C	$\text{Cu} + \text{FeSO}_4 \rightarrow \text{CuSO}_4 + \text{Fe} \downarrow$	1	
7.	D	nylon is a thermoplastic.	1	
8.	B	Using lamps assembled with compact fluorescent tubes	1	
9.	A	Sodium <i>n</i> -dodecyl benzene sulphonate	1	
10.	B	the driver of the ambulance	1	

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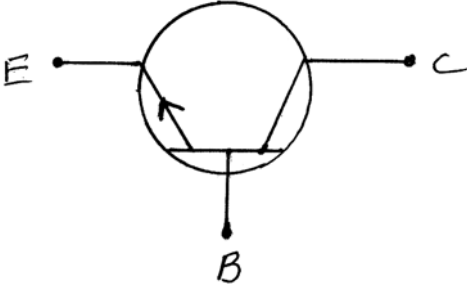
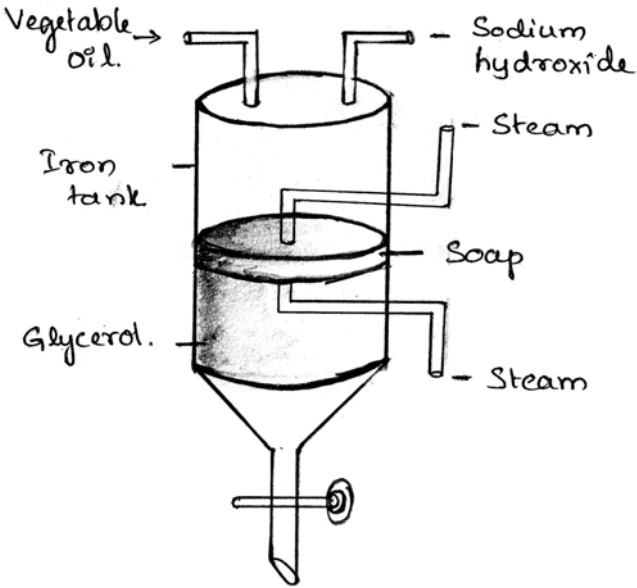
Qn. Nos.	Value Points	Marks allotted	Total
11.	Dynamo or Generator	1	
12.	Ultrasonic sound	1	
13.	$H - C \equiv C - H$	1	
14.	(a) — (iii) cocoon stage of the star	1	
	(b) — (v) outward pressure balances inward gravitational pull	1	
	(c) — (vi) dwarf star with high temperature	1	
	(d) — (vii) has intense gravitational field.	1	4
15.	Arrangement of solar cells connected in series is called a solar panel.	1	
16.	A changing magnetic field linking a conductor induces an electromotive force in the conductor.	1	
17.	Nuclear fusion reaction is a nuclear reaction in which two or more light nuclei combine to form a heavier nucleus releasing enormous amount of energy.	1	
18.	As white colour reflects radiation the rate of absorption decreases.	1	
19.	$Si + 2H_2O \rightarrow SiO_2 + 2H_2 \uparrow$	1	
20.	Celestial body B.	1	
21.	(i) Laser light is highly directional	$\frac{1}{2}$	
	(ii) Laser light is highly monochromatic	$\frac{1}{2}$	
	(iii) Laser light is coherent	$\frac{1}{2}$	
	(iv) Laser light has high intensity / laser light has high power density.	$\frac{1}{2}$	2
22.	Centripetal force		
	(a) Acts on the object		
	(b) Directed towards the centre		
	Centrifugal reaction		
	(i) Acts at the centre of the circular path		
	(ii) Directed away from the centre.		
	One pair of difference — 1		
	Two pairs of difference	1 + 1	2
23.	Natural polymer — (b) Protein	$\frac{1}{2}$	
	Synthetic polymer — (a) Polyester	$\frac{1}{2}$	
	(c) Neoprene	$\frac{1}{2}$	
	(d) Teflon.	$\frac{1}{2}$	
	(For each correct classification $\frac{1}{2}$ mark allotted $4 \times \frac{1}{2} = 2$)	$4 \times \frac{1}{2}$	2

Qn. Nos.	Value Points	Marks allotted	Total
24.	The electromagnetic wave is infra-red radiation. It stimulates blood circulation.	1 1	2
25.	$\text{Mg}(\text{HCO}_3)_2 + \text{Na}_2\text{CO}_3 \rightarrow \text{MgCO}_3 \downarrow + 2\text{NaHCO}_3$ Soda process	1 1	2
26.	 <p> $ABCD$ — Coil of conductor N, S — Poles of the magnets S_1, S_2 — Split rings B_1, B_2 — Brushes L — Lamp / Load </p> <p style="text-align: right;">For diagram</p> <p style="text-align: center;">For any two parts labelled correctly</p>	1½ ½	2
27.	<p>Acceleration due to gravity on the surface of earth = $g = \frac{G.M_E}{R_E^2}$</p> <p>Acceleration due to gravity at a height 'h' above the earth's surface = $g' = \frac{G.M_E}{(R_E + h)^2}$</p> <p>Object is taken to a height equal to the radius of the earth. $\therefore h = R_E$</p> <p>$\therefore g' = \frac{G.M_E}{(R_E + R_E)^2}$</p> <p>$g' = \frac{G.M_E}{(2R_E)^2}$</p>	½ ½	

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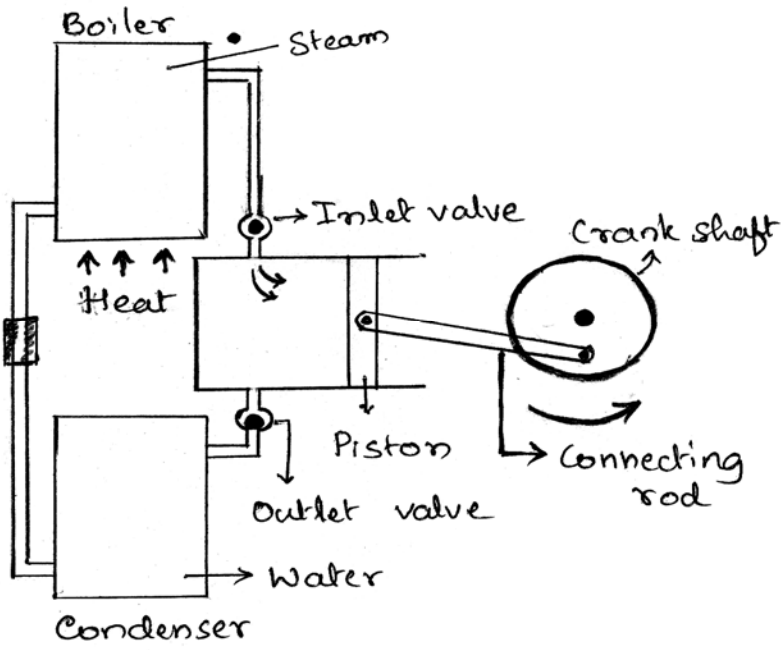
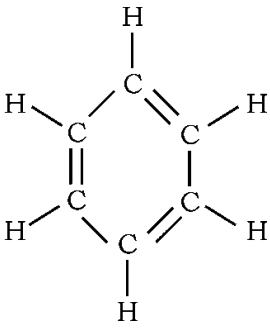
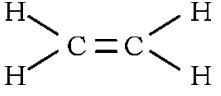
Qn. Nos.	Value Points	Marks allotted	Total
	$g' = \frac{G.M_E}{4R_E^2}$ $g' = \frac{1}{4} \left(\frac{G.M_E}{R_E^2} \right)$ $g' = \frac{1}{4} (g) = \frac{g}{4}$ <p>∴ Acceleration due to gravity decreases by 4 times.</p> <p style="text-align: right;">($\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$)</p>	<p style="text-align: center;">$\frac{1}{2}$</p> <p style="text-align: center;">$\frac{1}{2}$</p>	
28.	<p>(a) </p> <p>(b) </p>	<p style="text-align: center;">1</p> <p style="text-align: center;">1</p>	<p style="text-align: center;">2</p>
29.	 <p style="text-align: right;">For diagram</p> <p style="text-align: center;">For any two parts labelled correctly</p>	<p style="text-align: center;">$1\frac{1}{2}$</p> <p style="text-align: center;">$\frac{1}{2}$</p>	<p style="text-align: center;">2</p>

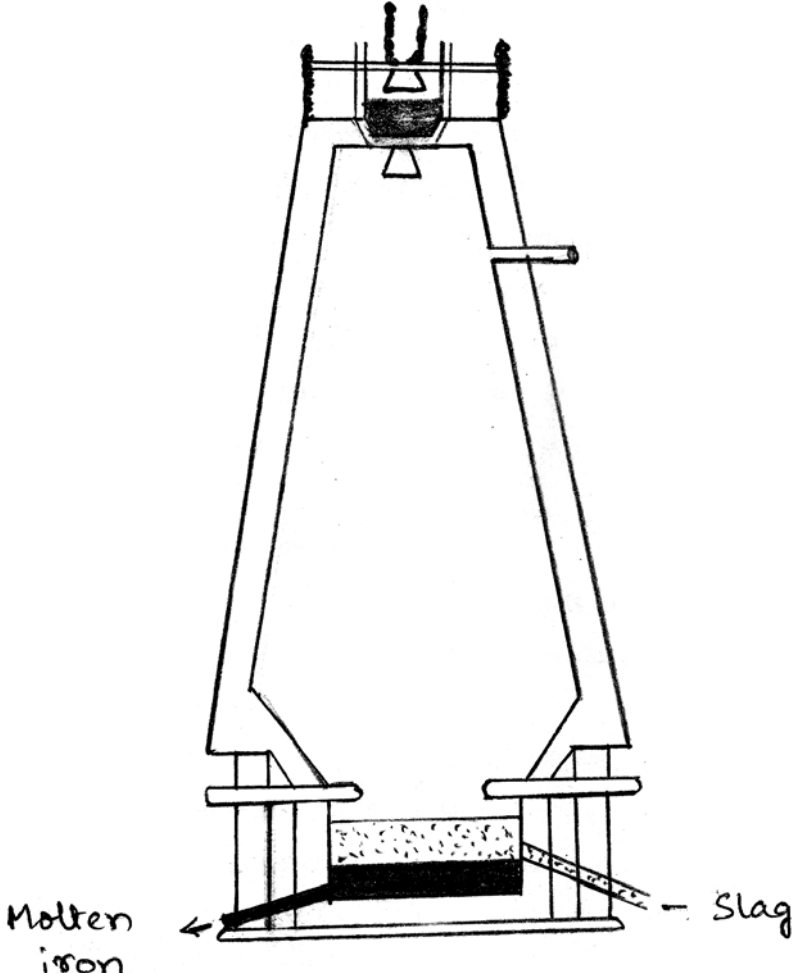
Qn. Nos.	Value Points	Marks allotted	Total
30.	(a) Refractive index is different for different colours (wavelengths) OR velocities of different colours are different in the medium.	1	
	(b) There is no change in the wavelength of scattered light.	1	
	(c) Elements in the solar atmosphere absorb different colours (wavelengths)	1	3
31.	(a) Phenomenon by which radioactivity is induced in an element, is called induced radioactivity. ${}_{13}\text{Al}^{27} + {}_2\text{He}^4 \rightarrow {}_{15}\text{P}^{30} + {}_0n^1$ (This can be written in words also)	1	
	(b) Parent nucleus is Carbon — 14 Daughter nucleus is Nitrogen — 14	$\frac{1}{2}$ $\frac{1}{2}$	
	(1 + 1 + $\frac{1}{2}$ + $\frac{1}{2}$)		3
32.	During each fission of U-235 two or three neutrons are released. These neutrons may continue the reaction further and further in the form of a chain with a multiplying effect. This self sustained reaction is nuclear chain reaction.	2	
	It can be controlled by keeping the number of fission causing neutrons constant or absorbing excess neutrons.	1	3

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Qn. Nos.	Value Points	Marks allotted	Total
33.	 <p style="text-align: right;">For diagram</p> <p style="text-align: center;">For labelling any two parts correctly</p>	2	3
34.	<p>(a) Law of conservation of momentum.</p> <p>(b) (i) As rocket consumes fuel its mass goes on decreasing.</p> <p>(ii) Acceleration due to gravity changes (decreases) continuously.</p> <p>(iii) Lower strata of the atmosphere offer resistance.</p>	1 1 1 1	4
35.	<p>(a) (i)</p>  <p>(ii)</p> 	1 1	

Qn. Nos.	Value Points	Marks allotted	Total
36.	(b) The process in which alkanes decompose to produce hydrocarbons of shorter chain when heated to a sufficiently high temperature in the absence of oxygen.	1	
	Example : $C_8H_{18} \xrightarrow{650^\circ C} C_6H_{14} + C_2H_4$ (Octane) (Hexane) (Ethene)	1	
	OR $C_{16}H_{34} \longrightarrow C_8H_{18} + C_8H_{16}$ n-hexadecane n-octane Octene (1 + 1 + 1 + 1)		4
	 <p data-bbox="349 1596 487 1680">Molten iron</p> <p data-bbox="1039 1596 1136 1648">Slag</p> <p data-bbox="349 1711 698 1852">For diagram For labelling molten iron For labelling slag</p>	3 $\frac{1}{2}$ $\frac{1}{2}$	4

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Qn. Nos.	Ans. Key	Value Points	Marks allotted	Total
Part - B (Biology) Marks : 35				
37.	D	Thyroxin	1	
38.	C	Frog	1	
39.	B	Mammals	1	
40.	A	0°C	1	
41.	A	Fixation → Ammonification → Nitrification → Denitrification	1	
Match the following :				
42.	(a) — (vi)	loose connective, helps in body defence	1	
	(b) — (vii)	loose connective, stores fat	1	
	(c) — (ii)	loose connective, attaches muscles to bones	1	
	(d) — (v)	loose connective, connects bones to bones	1	4
Answering in a sentence :				
43.		The capacity of the body to defend itself against the diseases.	1	
44.		Adulterated soji is sprinkled on water taken in a beaker. The sand particles sink and soji floats.	1	
45.		Molecules of smell will not dissolve in the mucous of the olfactory epithelium and hence the receptors are not stimulated. Hence taste may not be enjoyed. (Taste is sensed along with flavour)	1	
46.		Petals help in pollination.	1	

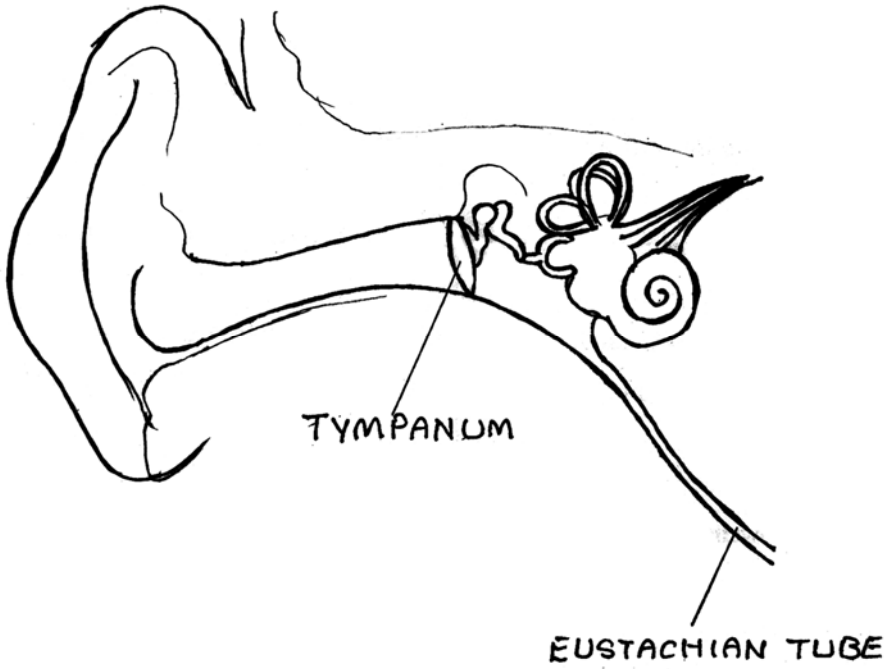
Qn. Nos.	Value Points	Marks allotted	Total
	Answering in two or three sentences :		
47.	<ul style="list-style-type: none"> — Watery fluid collects in some parts of the body. — Paralysis of limbs. — Affects normal functioning of the body. (Any two) 	1 + 1	2
48.	<ul style="list-style-type: none"> — Spherical in shape containing RNA as its genetic material. — Covered by a membrane made up of two layers of fatty material. — Inside the membrane, a core made up of proteins is found. — In the centre of the core, RNA and reverse transcriptase are present. 	<ul style="list-style-type: none"> ½ ½ ½ ½ 	2
49.	<p><i>Gaseous Cycle</i> — Reservoir pool is atmosphere or hydrosphere</p> <ul style="list-style-type: none"> — Perfect cycle. <p><i>Sedimentary Cycle</i> — Reservoir pool is lithosphere.</p> <ul style="list-style-type: none"> — Imperfect cycle. 	<ul style="list-style-type: none"> 1 1 	2
50.	<ul style="list-style-type: none"> — to obtain disease resistant and high yielding variety of plants. — to produce new varieties of plants by germplasm hybridization. — to reduce the period of life span of plants. — to transfer nitrogen fixing gene — to develop large number of plants in a limited space in a short period of time — to protect desirable characteristics by pollen culture and parthenocarpy. (any four) 	4 × ½	2

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Qn. Nos.	Value Points	Marks allotted	Total
51.	<p>The whole onion bulb germinates faster.</p> <p>It has the meristematic tissue which helps in growth.</p>	1 1	2
52.	Excessive growth of plants and weeds leads to the depletion of oxygen resulting in the gradual death of aquatic animals.	1 + 1	2
53.	<p>The light rays reflected from the object are focused on the retina to form the image.</p> <p>The retinal cells are stimulated by photochemical reactions.</p> <p>These cells convert the stimulations into electrical impulses which pass along the optic nerve to the visual centre in the cerebrum.</p> <p>The interpretation of these impulses in the cerebrum, results in vision.</p>		3
54.	<p>Diagram showing the structure of a flower :</p> <p>(Any two parts)</p>	2 + ½ + ½	3

Qn. Nos.	Value Points	Marks allotted	Total
55.	<p>Diagram showing the structure of human ear.</p> 	$3 + \frac{1}{2} + \frac{1}{2}$	4

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