

**S.S.L.C. EXAMINATION, MARCH - 2015  
PHYSICS (English)**

Time : 1½Hours

Total Score : 40

**Instructions :**

- 1) First 15 minute duration is 'cool off time'.
- 2) Cool off time is given to read and understand the questions well.
- 3) The score of each question is given along with it.

[SCORE]

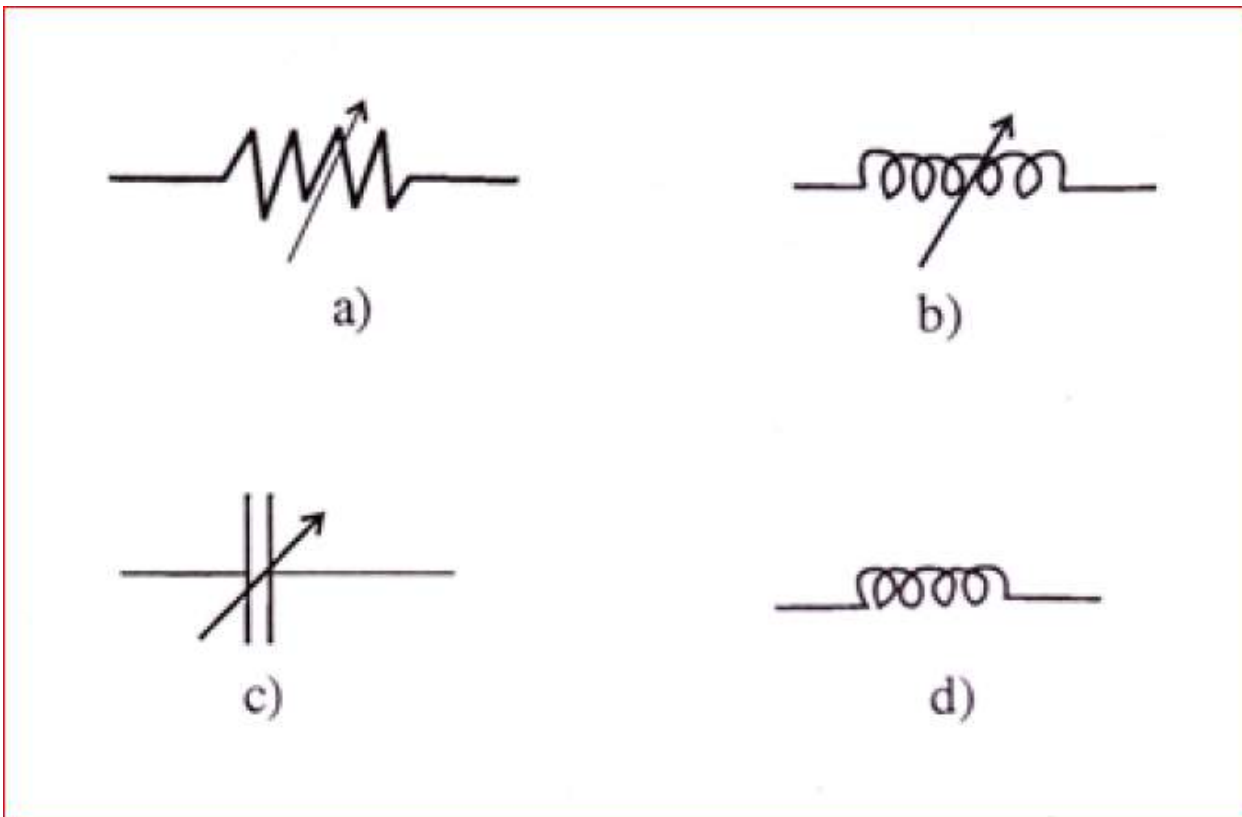
**Q1)** Select the instrument that works on the principle of multiple reflection of sound [1]

- a) Watthour meter
- b) Sonar
- c) Stethoscope
- d) Decibel meter

**Q2)** Study the relationship between the first pair and then complete the second pair. [1]

Capacitance: Farad:: Resistivity: \_\_\_\_\_

**Q3)** Given below are the symbols of a few electronic components. Which of these components denote a variable inductor? [1]



**Q4)** Which of the following describes ecliptic orbit [1]

- a) Orbit travelled by the moon round the sun.
- b) Path travelled by the earth round the sun.
- c) Orbit along which sun appears to move among the stars!
- d) Orbit along which moon appears to move among the stars.

**Q5)** When can an equilateral satellite be called a geostationary satellite? [1]

**Q6)** Match the items given in A suitably with items given in B and C. [3]

A	B	C
Microphone	Sonar	Electrical energy gets converted to sound energy
Ultra sonic sound	Permanent magnet	Sound energy gets converted to electrical energy
	Butane	Conventional source of energy
	Methane	Non conventional source of energy
CNG		Sound waves that are audible
		Sound waves that are not audible

**Q7)** In AC Circuits, what is the advantage of using inductors instead of resistors? [1]

**Q8)** A motor rated 500 W, 230 V utilizes 3 units of electrical energy. Calculate the time for which the motor works. [1]

**Q9)** Light energy is obtained in fluorescent lamp and in CFL as a result of electron emission. Yet the process of electron emission is different in both cases. What is the difference? [2]

**Q10)** It is not safe to operate several electrical appliances simultaneously by using an adapter operating from a single point. Why? [2]

**Q11)** In an household electrical circuit. [2]

a) Where is the MCB (Miniature Circuit Breaker) connected?

b) What is the function of ELCB (Earth Leakage Circuit Breaker)?

**Q12)** A tuning fork is excited and its stem is pressed on a wood table [2]

a) The table starts to vibrate. What is this type of vibration called?

b) Under what condition, can resonance occur in this case?

**Q13)** What are the advantages of using armature as the stator in a power generator? [2]

**Q14)** State what happens to the loudness of sound in the following cases [2]

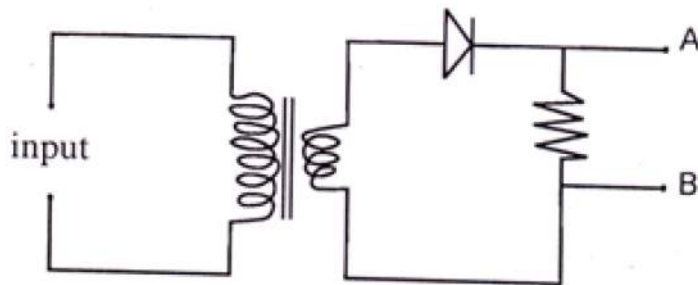
(a) Density of the medium increases

(b) Distance between the source and the receiver increases

Answer any one out of 15 A and 15B

**Q15) A) A diode is connected to the output of a transformer as shown the figure given below. Analyse the figure**

[2]



- Draw a time-voltage graph for the current obtained across AB.
- What is the function of the diode in the circuit?

OR

**Q15) B) When sound signals get amplified.**

[2]

- What change can you observe in the amplified signals?
- What remains unchanged in the sound signal even after the amplification?

**Q16) A blue flower appears blue in magenta light. In which other secondary light will the blue flower appear blue itself.**

[1]

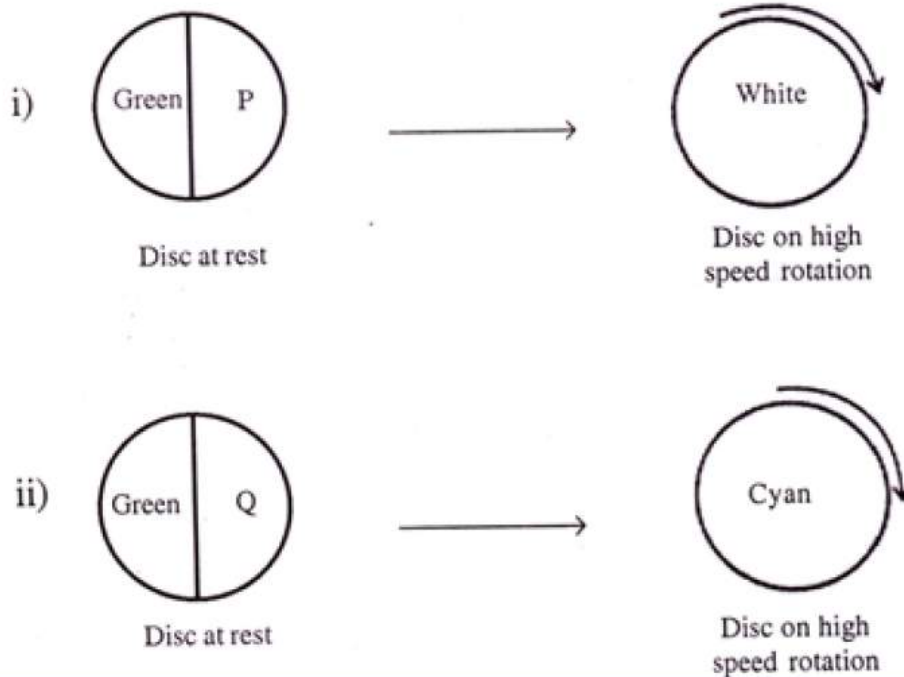
**Q17)** Describe an experimental set up to show that sunlight can be split up into consistent colors and then convert it back to white light. [2]

**Answer any one of 18A and 18B**

**Q 18)**

A) a) What do you mean by a complimentary colour?

b) Study the following figures and identify P and Q. [3]



Or

- B) a) Is it correct to say that only red colour is given out from the water droplets situated on the outer edge of a rainbow. Justify your answer.
- b) Write a situation in which a rainbow can be viewed as a full circle instead of an arc.

[3]

**Q19)** 'Chandra' is a telescope operating in space to unveil the secrets of the universe [3]

- a) Write the, type of radiation that 'Chandra' picks up to study the universe.
- b) What are the advantages of setting up a telescope outside the earths atmosphere?

**Q20)** Instead of using biomas directly as fuel, it always advantagous to use biogas produced from biomass. [3]

- a) What do you mean by biomass.
- b) What are the advantages of using biogas as fuel?



**Q21)**

It is required to construct a transformer which gives 12V from a 240V AC supply. The number of turns in the primary is 4800. [4]

- a) Calculate the number of turns in the secondary.
- b) State whether, coil in the secondary has to be thick or thin. Justify your answer.

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