



Sl.No. 031414

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

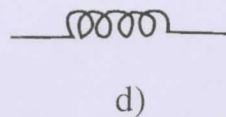
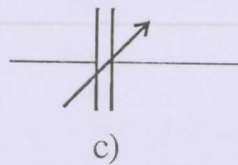
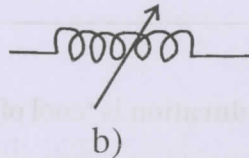
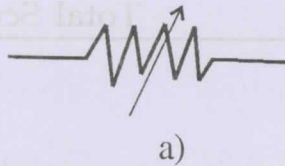
Q2) Study the relationship between the first pair and then complete the second pair. [1]

Capacitance : Farad : : Resistivity : _____.

P.T.O.



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 equatorial satellite be called a geostationary satellite? [1]

Q6) Match items given in A suitably with items 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 utilises 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]



[SCORE]

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 wooden 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]

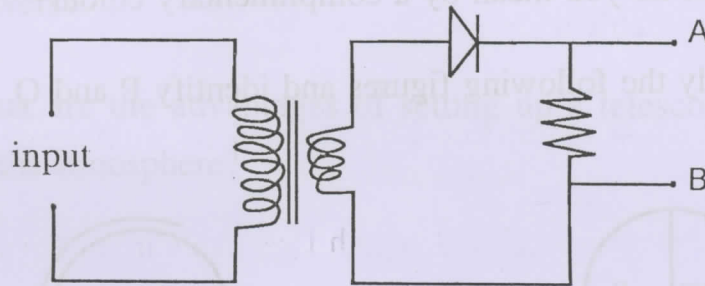
Q14) State what happens to the loudness of sound in the following cases. [2]

- a) Density of the medium increases.
- b) Distance between the source and the receiver increases.



Answer any one out of 15A and 15B.

Q15) A) A diode is connected to the output of a transformer as shown the figure given below. Analyse the figure [2]



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

OR

Q15) B) When sound signals get amplified. [2]

- a) What change can you observe in the amplified signals?
- b) 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 constituent colours and then convert it back to white light. [2]

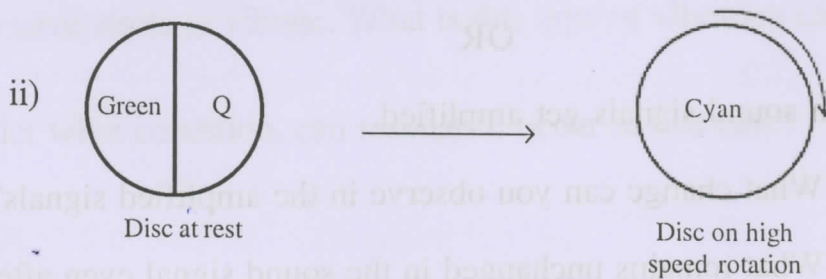
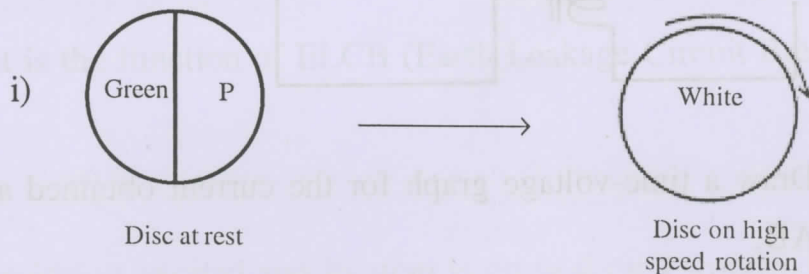


Answer any one out of 18A and 18B.

Q18) A) a) What do you mean by a complimentary colour?

b) Study the following figures and identify P and Q.

[3]



OR

Q18) 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 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 is always advantageous 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.