

2018

CBCS

3rd Semester

PHYSICS

PAPER—SEC1T

(Honours)

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Physics Workshop Skill

1. Answer any five questions : 5×2
- (a) What is the convenient system of units of measurement in atomic physics ?
 - (b) How can you relate 'litre' with cm^3 ?
 - (c) What is the use of filler material during welding ?

(Turn Over)

- (d) What is lathe ?
- (e) What is the main difference between soldering and welding ?
- (f) How does transistor behave as a switch ?
- (g) Explain lever of class 3 by a suitable diagram.
- (h) What is the use of relay in electronic circuit ?

2. Answer any *four* questions : 4×5

- (a) How can you measure the volume of a cylindrical beaker and what are the minimum parameters required for it ? 4+1
- (b) Briefly explain various welding defects ? 5
- (c) What is the use of lubricating oils in machine ? What are the tips and techniques for drilling Holes in wood ? 2+3
- (d) What is SMD in PCB ? What are uses of 555 timer IC ? 3+2
- (e) Write the working principle of power generation systems ? What do you mean by rpm of turbine ? 4+1
- (f) How can you measure the heights of maintain by the use of sextant ? 5

3. Answer any *one* question : 1×10

- (a) Explain the detailed process of measuring diameter of a thin wire by (i) screw gauge (ii) by slide callipers ?

According to you which is the most accurate method
— explain. (4+4)+2

- (b) Frame a 5 volt regulated power supply with detailed electronic circuit and explain the working of it. 5+5

Electrical Circuits and Network Skills

1. Answer any *five* questions : 5×2
- (a) Increase of thickness decrease the resistance -
Explains. 2
- (b) What is power factor? 2
- (c) What do you mean by step up and step down transformer? 2
- (d) What is the minimum no of diodes to built a full wave rectifier? 2
- (e) What is blue prints in electrical drawing? 2
- (f) Can a transformer operate on DC? Explain. 2
- (g) What do you mean by co-efficient of coupling? 2
- (h) What is surge protection in electrical circuit? 2

2. Answer any *four* questions : 4×5,

- (a) How can you convert star connection into delta connection ? 5
- (b) Draw the current voltage relationship curve for a particular frequency in an AC circuit containing Inductor and external resistance in series. 5
- (c) What do you mean by Ladder diagram ? What is a motor control circuit ? 3+2
- (d) Find out the bandwidth of a tuned circuit with series R-L-C combination using AC source. 5
- (e) Explain briefly the operation of a step up transformer. 5
- (f) How can you increase the range of voltmeter and Ammeter ? What is extension board ? (2+2)+1

3. Answer any *one* question : 1×10

- (a) Explain the working principle of an AC generator with suitable diagram ? What is the difference between AC and DC Generator ? 7+3
- (b) Explain with suitable diagram the working principle and detailed design of a DC Motor ? 4+6