TDC (CBCS) Odd Semester Exam., 2023

PHYSICS

(3rd Semester)

Course No. : PHSSEC–301T

(Workshop Skill)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer *fifteen* questions, selecting any *three* from each Unit : 1×15=15

UNIT—I

1. What are the CGS and SI units of force?

2. Write the expression for the volume of a cylindrical shell of inner radius r_1, outer radius r_2 and length L.

3. What is the main advantage of a screw gauge over vernier caliper?

4. Why is screw gauge called a screw gauge?

UNIT—II

5. Name a material used for manufacturing.

6. What is an alloy?

7. List any two manufacturing methods.

8. What is the composition of steel?

UNIT—III

9. What is a shaper?

10. What is milling?

11. What is machine processing?

12. Why are lubricating oils used?

UNIT—IV

13. What is a relay circuit?

14. Why is multimeter called a multimeter?

15. Mention two uses of a multimeter.

16. What is IC 555 timer?

UNIT—V

17. What do you mean by a gear?

18. Mention two types of power generation system.

19. What is the main advantage of a gear?

20. What do you mean by a prime mover?

SECTION—B

Answer *five* questions, selecting *one* from each Unit : 2×5=10

UNIT—I

21. Convert 1 newton into dyne.

22. What is instrumental error?

UNIT—II

23. Write one advantage and one disadvantage of using composite material for manufacturing process.

24. What is forming? Explain briefly.

UNIT—III

25. Describe the process of cutting of a metal sheet using a blade.

26. How will you drill holes of different diameters inside a metal sheet?

UNIT—IV

27. Explain the soldering of electrical circuits.

28. Write down two applications of a CRO.

UNIT—V

29. Describe two different types of brakes.

30. How will you lift a heavy weight using a lever?

SECTION—C

Answer *five* questions, selecting *one* from each Unit : 5×5=25

UNIT—I

31. Describe the principle of working of vernier caliper. What is the least count of a vernier caliper and how can it be used to calculate the diameter of a thin wire? 1+1+3=5

32. What is a sextant? How can it be used to measure the height of a mountain? 1+4=5

UNIT—II

33. What is welding? Discuss some of the welding defects. 2+3=5

34. Name the two most common types of materials used in manufacturing. Discuss the advantages of these two materials. 2+3=5

UNIT—III

35. What is a lathe? Describe the principal parts of a lathe. How can lathes be classified? 1+2+2=5

36. What is a bench vice? How will you use a bench for fitting? 2+3=5

UNIT—IV

37. What is a regulated power supply? Explain its functioning with the help of a circuit diagram. 2+3=5

38. What is an electronic switch? Explain the working of a transistor as an electronic switch with the help of a circuit diagram. 2+3=5

UNIT—V

39. What is a pulley and why is it used? Demonstrate a pulley experiment showing its utility. 2+3=5

40. Explain the principle of thermal power generation system. What are the advantages and disadvantages of thermal power generation system? 1+2+2=5

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