



Shree H.N. Shukla College of Science Rajkot

PHYSICS

T.Y.B.Sc. (Sem. V) (CBCS)

Preliminary examination

PAPER- 502

[Time: 2.30 hours]

[Total Marks: 70]

Date: 28/09/17

Instructions: All questions are compulsory.

The right side figure indicates total marks of the question.

Draw the figure wherever necessary.

Write answers of all the questions in main answer sheets.

SECTION-A

Q.1: Answer The Question in one line:

[20]

1. RC coupling is used for _____ amplification.
2. Class _____ power amplifier has highest collector efficiency.
3. Final stage of multistage amplifier uses _____ coupling.
4. If a power supply has no load and full load voltages of 30 V and 25 V respectively then percentage voltage regulation is _____ .
5. The frequency response of transformer coupling is _____ .
6. The output transformer used in a power amplifier is a _____ transformer.
7. In _____ power amplifier the collector current flows for less than half cycle of the input signal.
8. Maximum collector efficiency of series fed class A amplifier is _____.
9. Lissajous pattern obtained on a CRO can be used to determine _____.
10. In transistor amplifier we use _____ transformer for impedance matching.
11. The energy per unit time, per unit area, transported by the fields is called _____ vector.
12. What is the unit of electric flux?
13. Let $F = qvB \sin \theta$, $a = 30^\circ$, $v = 8 \text{ m/sec}$ and $B = 0.8 \text{ Tesla}$. At which angle the force F becomes maximum?
14. What is the calorific value?
15. An alternator can be converted the out put _____ energy of prime mover into _____ energy.
16. The direction of induced emf in a circuit is given by _____ 's law.
17. The energy per unit time, per unit area, transported by the fields is called _____ vector.
18. _____ field lines do not begin or end anywhere?

19. What is the electric flux through an area vector A. if the angle between vector A and vector E is 90° ?
20. What is the function of alternator in power system?

SECTION – B

Q.2 (A): Short Questions: Write any three [2 Marks each] [06]

1. What is Faraday's law in integral form and what is len's law?
2. Define Generation of electrical energy and write a name of energy sources.
3. State Maxwell's equation for electrostatic
4. What is hydroelectric power station?
5. What is an electrostatic?
6. Write an advantage of hydro electric power station.

Q.2 (B): Short questions: Write any three [3 Marks each] [09]

1. Explain in brief divergence of B.
2. Explain in brief curl of E.
3. Explain the different terms of "work energy theorem" of electrodynamics.
4. Write a note on calorific value of fuels.
5. State the advantages of liquid fuels over solid fuels.
6. State advantages and disadvantages of Diesel power station.

Q.2 (C): Write Detail Note on [Any two] [5 Marks each] [10]

1. Draw a schematic diagram of steam power station and explain.
2. Write down Maxwell's field equations and prove poynting's theorem.
3. Explain the term "magneto statics" and "electrostatics".
4. Explain an electric flux and derive an expression for gauss law in differential form.
5. Explain the motion of a charge partial in a uniform magnetic field B.

SECTION – C

Q.3 (A): Short Questions: Write any three [2 Marks each]

[06]

1. Define: Class B power amplifier.
2. Give five application of CRO.
3. Draw the graph of frequency response of RC coupled amplifier.
4. Define transistor audio power amplifier.
5. Define: collector efficiency.
6. Only mention the classification of power amplifier.

(B): Short questions: Write any three [3 Marks each]

[09]

1. Draw a circuit diagram of push pull amplifier.
2. Draw a circuit diagram of complementary symmetry amplifier.
3. Explain the difference between electrical and electronic instrument.
4. Write a note on Heat sink.
5. Explain the essential of an electronic instrument.
6. Explain: advantages and disadvantages of RC coupled amplifier.

(C) Write Detail Note on [Any two] : [5 Marks each]

[10]

1. Explain push pull amplifier.
2. Write short note on transistor series voltage regulator.
3. Write short note on CRO.
4. Write note on digital voltmeter.
5. Write note on thermal runaway.

ALL THE BEST