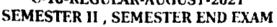
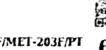
STATE BOARD OF TECHNICAL EDUCATION AND TRAINING TELANGANA DIPLOMA EXAMINATION (C-18)

C-18-REGULAR-AUGUST-2021





18AA-203F/A-203F/C-203F/CH-203F/CM-203F/EE-203F/EI-203F/FW-203F/M-203F/MET-203F/PT 203F/PKG-203F/MNG-203F/BM-203F/ES-203F/EV-203F/TT-203F/EC-203F APPLIED PHYSICS

Duration: 3 Hours

[Total Marks: 60]

PART-A

Instructions:

1. Answer any TWELVE questions.

 $12 \times 1 = 12$

Each question carries ONE mark.

- Define longitudinal wave motion. 1.
- Define stationary wave. 2.
- Define Amplitude. 3..
- Define Seconds Pendulum. 4.
- Define population inversion. 5.
- What is the energy of each photon according to quantum theory. 6.
- Define pole strength of a bar magnet. 7. `
- Define magnetic field. 8. `
- Define conductance and write the S.I. unit of conductance. 9. •
- What is the relation between resistance and resistivity. 10.
- What is Fermi level 11.
- Name two examples of intrinsic semiconductors. 12.
- Write the formula for maximum acceleration in SHM. 13.
- What is acceptance angle in optical fibers. 14.
- State Ohm's law. 15.

PART-B

Instructions: Answer any SIX questions. $6 \times 3 = 18$ 2. Each question carries THREE marks.

- Evaluate the velocity of the sound in air if an observer at a distance of 400 16. meter from a building hears an echo after 2.5 seconds.
- List three conditions of simple harmonic motion. 17.

- 18. State the conditions of total internal reflection.
- 19. A bar magnet of pole strength 50 Am has a length of 20 cm . Calculate magnetic moment
- 20. Three currents 2 mA, 5 mA and X mA are flowing towards a junction and two currents 6 mA and 4 mA are flowing away from the junction. Find the value of the current 'X'.
- List any three applications of PN diode. 21.
- Explain Doppler Ultrasound as an application of Doppler effect in medicine. 22.
- Draw the magnetic lines of force for (i) north pole and north pole close to 23. each other (ii) north pole and south pole close to each other.
- If 20 ohm and 30 ohm are connected in left and right gaps in meter bridge 24. experiment, find the balancing length in S.I system.

PART-C

1. Answer any SIX questions. Instructions:

 $6 \times 5 = 30$

- 2. Each question carries FIVE marks.
- Explain Reverberation and Reverberation time. 25.
- Derive an expression for time period of a simple pendulum. 26.
- Write any five applications of optical fibre.
- Derive the expression for moment of couple on a bar magnet placed in a 27: 28. uniform magnetic field.
- Explain conversion of a galvanometer into Ammeter and voltmeter. 29.
- Explain working principle of Light Emitting Diode with neat diagram. 30. °
- The displacement of a particle executing simple harmonic motion is given 31., $y = 5\sin\left(2\pi t + \frac{\pi}{4}\right)m$. Find (i) amplitude (ii) angular velocity (iii) time period (iv) frequency (v) initial phase.
- Explain conductors, insulators and semiconductors on the basis of energy 32.
- 33. https://www.sbtetonline.com