

22482

23124

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define with respect to sound system :
 - (i) Sensitivity
 - (ii) Selectivity
- (b) Name the 'Primary Colours' and the 'Complementary Colours' chosen for colour TV system.
- (c) Justify, the need of pick-up device used in Digital camera.
- (d) List the electrical specifications of Microwave oven.
- (e) List the two sensors used in wrist band.
- (f) List the two types of scanner.
- (g) Differentiate between Mono and Stereo amplifier with respect to,
 - (i) No. of amplifier
 - (ii) Applications



- 2. Attempt any FOUR of the following : 12**
- (a) Explain the working of washing machine with neat block diagram.
 - (b) State the function of Equalizer with block diagram of Hi-Fi audio amplifier.
 - (c) Describe the troubleshooting procedure of colour TV Receiver system.
 - (d) Explain VR connectivity with workstation using USB.
 - (e) Explain the working principle of OLED TV with neat labelled diagram.
- 3. Attempt any FOUR of the following : 12**
- (a) “Digital Camcorders are best for video recording than Digital Camera.” Justify.
 - (b) Justify the need of adjusting iris mode, focus mode and white balance mode in CCTV.
 - (c) Describe the operating principle of condenser type of microphone with neat diagram.
 - (d) State Grassman’s law. Draw the sketch of Additive mixing.
 - (e) Explain the following with respect to smart wrist band,
 - (i) Sensors
 - (ii) Storage
- 4. Attempt any THREE of the following : 12**
- (a) Draw block diagram of MP3 player and explain its working.
 - (b) Draw the functional block diagram of VR Headset. List the types of screens in VR Headset.
 - (c) List any eight CCIR-B standards for Colour Signal Transmission and Reception.
 - (d) Draw the block diagram of Laser Printer. List two specifications of Laser printer.
 - (e) “Wearable antennas have effect on Human body.” Give supporting answer to conclude.

5. Attempt any THREE of the following :**12**

- (a) Draw a neat sketch of composite video signal and mark the following :
 - (i) Blanking pulses
 - (ii) Synchronising pulses
 - (iii) Picture information
 - (iv) Pedestal Height
- (b) Differentiate between Woofer and Tweeter speaker on the basis of following parameters :
 - (i) Definition
 - (ii) Frequency range
 - (iii) Size
 - (iv) Frequency response
- (c) “Fuzzy Logic Optimizes the performance of washing machine.” Justify.
- (d) State four electrical specifications with values for washing machine.
- (e) Describe with the help of functional block diagram the control unit of LED projector.

6. Attempt any TWO of the following :**12**

- (a) Differentiate between Positive and Negative modulation with respect to,
 - (i) Definition
 - (ii) Waveform
 - (iii) Effect of Noise interference on synchronization.
 - (iv) Effect of Noise interference on picture signal.

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- (b) Draw a neat sketch of microwave oven. State the function of Magnetron and Bleeder resistor.
 - (c) Explain with proper steps the complete installation process of CCTV.
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