



COLLEGE: COLLEGE OF ENGINEERING, SCIENCE & TECHNOLOGY (CEST)

SCHOOL: SCHOOL OF ELECTRICAL & ELECTRONICS ENGINEERING

PROGRAMME: CERTIFICATE IV IN ELECTRONICS ENGINEERING - STAGE 4

UNIT CODE: EEE422

TITLE: TELEVISION

FINAL EXAMINATION – PENSTER 2, 2014

ROOM: AS PER TIMETABLE

INSTRUCTIONS TO STUDENTS

1. You are allowed 10 minutes extra reading time during which you are NOT to write.
2. Begin each SECTION on a fresh page and use both sides of the sheet.
3. Write your candidate number at the top of each attached sheet.
4. Insert all written foolscaps, graph paper, drawing paper, etc. in their correct sequence and secure with a string.
5. For all sheets of paper on which rough/draft work has been done, cross it through and ATTACH these to your answer scripts.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. Use of programmable calculator(s) is prohibited.
8. **ANSWER ALL QUESTIONS**
9. Show all working where necessary.
10. **ALWAYS CHECK YOUR WORK BEFORE YOU LEAVE THE EXAM ROOM.**

Section A

Multiple Choice

[15 Marks]

Choose the appropriate answer from each question by writing the alphabet beside the question number in the answer booklet.

- 1) Which name is synonymous with the invention of television?
 - A) Farnsworth
 - B) Marconi
 - C) Edison
 - D) Nielsen

- 2) CATV stands for:
 - A) Community-access TV, low-power stations which the law requires be run by local volunteers
 - B) Cat TV, a short-lived cable network featuring shows about cats
 - C) Copycat television, a term used for programs that imitate popular formats
 - D) Community antenna TV, local systems used first to deliver broadcast TV in areas with poor reception

- 3) A television affiliate is:
 - A) another term for a superstation
 - B) a new TiVo-like device for recording programs
 - C) a television executive in charge of developing new inter-media relations
 - D) a broadcast station that agrees to carry programming from a network

- 4) A signal horizontal line across the middle of the screen indicates trouble in the _____.
 - A) Tuner section
 - B) Vertical section
 - C) Horizontal section
 - D) Video section

- 5) A total of 525 scanning lines represent _____.
 - A) A field
 - B) A frame
 - C) A cycle
 - D) An interlace set

- 6) One set of 262 ½ scanning lines represents _____.
- A) A field
 - B) A frame
 - C) A cycle
 - D) An interface set
- 7) Before a convergence setup is performed, one should first perform _____.
- A) Gray tracking
 - B) Degaussing
 - C) Screen setting
 - D) Alignment
- 8) The line frequency for Fiji Television system is :
- A) 15625 Hz
 - B) 15750 Hz
 - C) 15650 Hz
 - D) All of the above
- 9) A silvery, out-of focus picture usually indicates a bad _____.
- A) rectifier
 - B) picture tube
 - C) high-voltage transformer
 - D) filter
- 10) The amount of brightness perceived is referred to as:
- A) Hue
 - B) Luminance
 - C) Saturation
 - D) Chrominance
- 11) The basic science behind the invention of television involved _____ technology.
- A) photographic
 - B) electronic
 - C) digital
 - D) chemical
- 12) The capacity to reach smaller and more distinct audiences, such as cable television's ability to deliver multiple channels, is called:
- A) quota sampling
 - B) target marketing
 - C) broadcasting
 - D) narrowcasting

- 13) Cable companies deliver their programs using:
- A) people meters
 - B) airwaves
 - C) wires
 - D) all of these
- 14) Substations make use of which of the following television delivery technologies?
- A) cable
 - B) over the air broadcast
 - C) satellite
 - D) all of these
- 15) In the world of television, an "upfront" is an:
- A) award winning program showcased by a network or station
 - B) affiliate with a desirable demographic audience
 - C) satellite
 - D) advance commitment by an advertiser

SECTION B**FILL IN THE BLANKS****20 MARKS**

Write the question number and answer beside it in the answer booklet.

1. _____ was given to pioneering noncommercial television stations of the 1950s and 1960s.
2. The brightness control usually is located on the _____ with the _____.
3. The input of the video amplifier is connected to the output of the _____.
4. The number of lines in the PAL system is _____.
5. Modulation is a process of transmitting sound and picture in a television system. Sound is transmitted using _____ modulation while picture uses _____ modulation.
6. Interlaced scanning is used to reduce _____.
7. Color in a television receiver is produced by mixing colors and the primary colors are _____, _____, _____.
8. In a complete television system the two outputs are _____ and _____.
9. _____ can be said to be the movement of the electron beam of a CRT from left to right.
10. In all three bands, each television channel is _____ MHz wide.
11. The color television receiver is required to have _____ electron beams while the monochrome receiver needs to have _____ beam only.
12. The function of a video amplifier is to _____ the video signal.
13. Video signal bandwidth for PAL is _____.
14. The subcarrier crystal oscillator is not precise enough to permit proper detections of the chroma _____.

SECTION C

[10 MARKS]

Write either **TRUE** or **FALSE** for the correct answer.

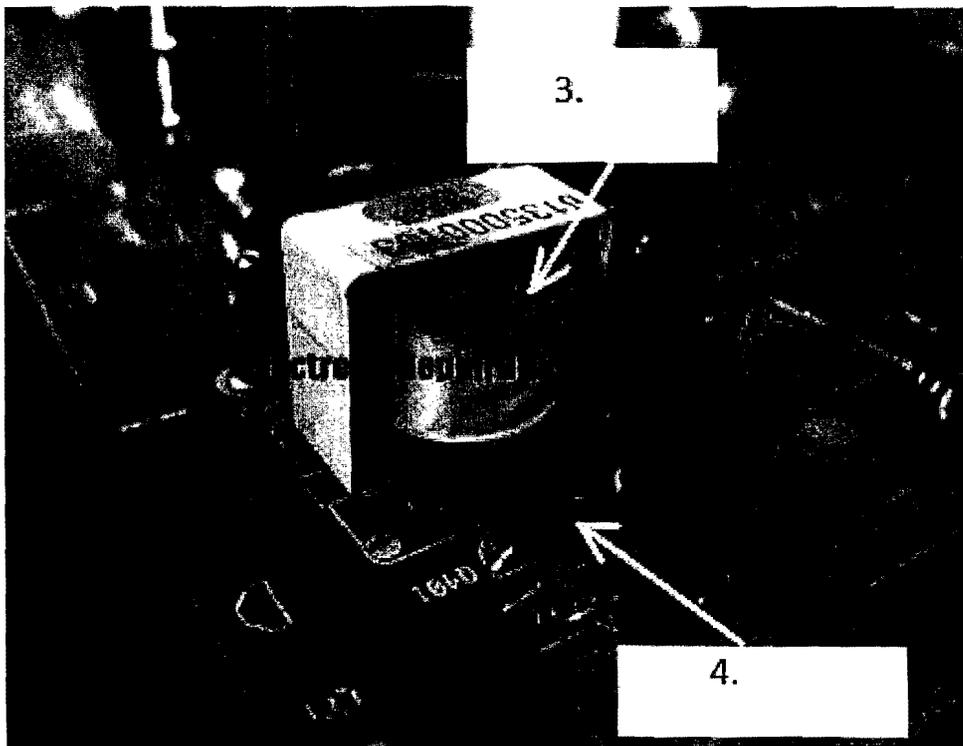
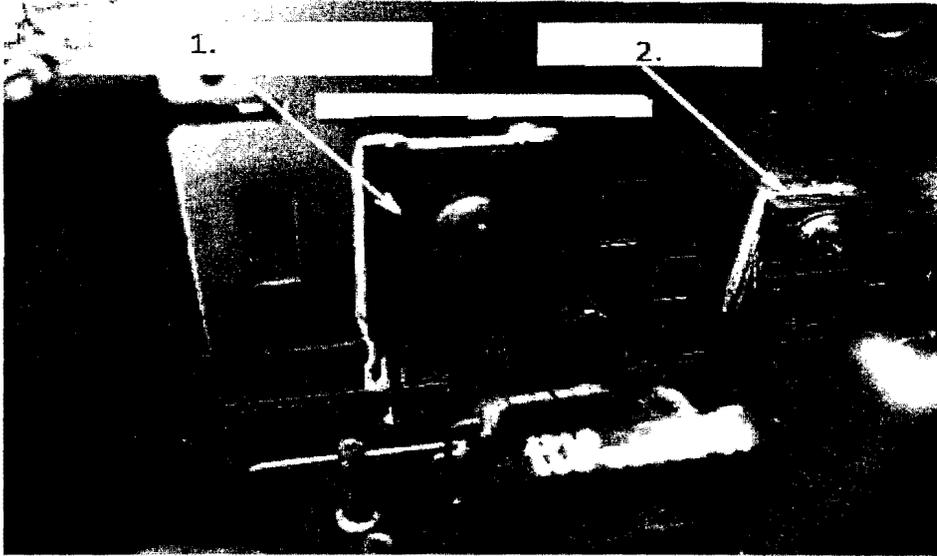
1. Correct color reproduction requires undistorted chrominance and luminance signals.
2. The aspect ratio specifies 4:3 for the ratio of width to height of the frame.
3. Separation of the beams for the red, green and blue colors is accomplished by the shadow mask.
4. A permanent- magnet ring on the neck of the tube is used for flickering.
5. CCFL lamp is used as a back light lamp in a LCD television. CCFL stands for Cold common fluorescence lamp.
6. Polarizer is a filter which converts an unpolarized beam of electromagnetic waves into a beam with a single polarization state.
7. Degaussing means magnetizing the picture tube with 50-HZ alternating current from the power line.
8. The frequency of the sawtooth waveform for horizontal deflection is the 15,625-Hz horizontal line rate.
9. The NTSC and SECAM color television systems are the same.
10. If some colors are more vivid than others generally the problem is a misadjusted screen.

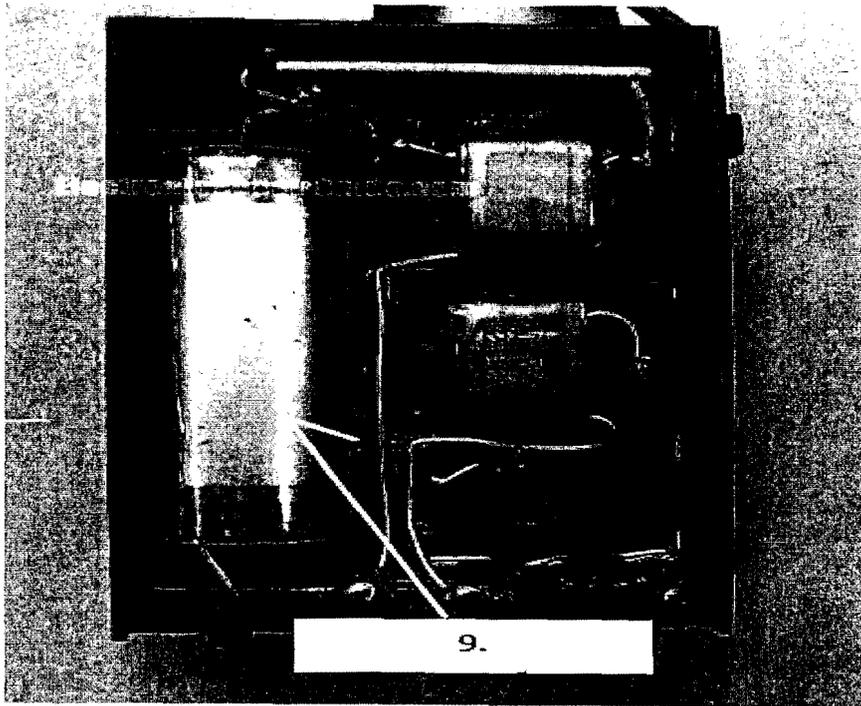
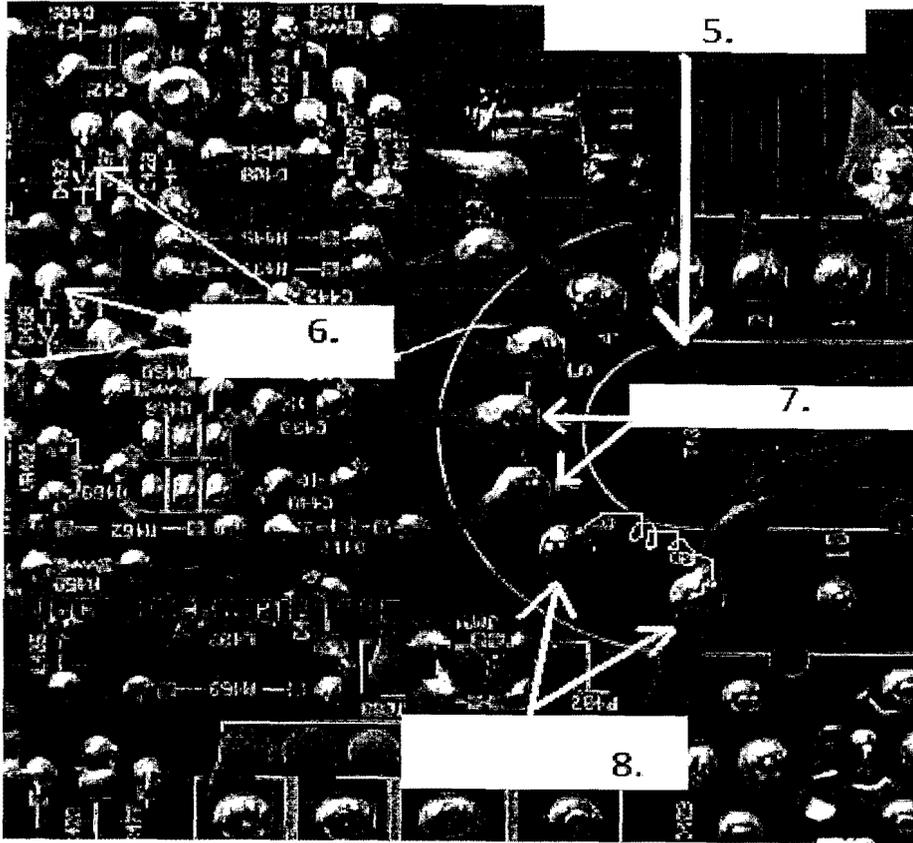
SECTION D

IDENTIFICATION

[9 MARKS]

1. Label the following components:





SECTION E

[46 MARKS]

1. Why is vertical hold control used? **(2 marks)**
2. Explain the inter carrier sound system? **(2 marks)**
3. Explain the operation of a color television receiver from the moment the power is applied to the moment the raster is displayed on the CRT? **(5 marks)**
4. In TV system used in India, total number of scanning lines per frame is 625 and the line lost per field is 30. Calculate vertical and horizontal resolutions. **(3 marks)**
5. Suppose you are working in a television repair center and a customer brings a LCD television complaining that multiple vertical lines appear on the screen. What is the likely fault and solution for the problem? **(2 marks)**
6. Explain the difference between Delta-Gun, Precision-in-Line and Trinitron colour picture tubes in terms of the electron guns used. **(3 marks)**
7. A technician is troubleshooting a color television and finds out that the display shows faded color. Explain what the technician should do to remedy this fault. **(2 marks)**
8. How will you perform purity adjustment in a CRT color television? **(2 marks)**
9. Calculate the number of lines per frame to subtend an angle of 1 minute at a distance of 4 times the height of screen. **(2 marks)**

10. List five safe working practices? **(5 marks)**

11. In a television receiver block diagram the block which is usually marked “tuner” represents some circuitry.

a) Describe the meaning of the word impedance and state how the transmission line from the antenna is normally matched to the tuner? **(3 marks)**

b) What is the input device of the receiver and state the functions? **(2 marks)**

c) Briefly explain the functions of the tuner? **(2 marks)**

12. List five personal safety precautionary measures? **(5 marks)**

13. Draw and label the block diagram of a TV transmitter (intercarrier method). **(6 marks)**

.....End of Examination Paper.....