

Electronics Examination

Question – 2

Date: 11-09-2017

Time: 10:30AM – 12.30PM

Full Marks: 50

All Questions are compulsory:

- (1) Mention the advantages of FET over BJT 2
- (2) Show by Boolean algebraic manipulation that $\overline{AB} + \overline{A} + AB = 1$ 2
- (3) Convert (675.625) into its hexadecimal equivalent. 1
- (4) What is the Barkhausen criterion for oscillation of feedback amplifier? 2
- (5) Compare narrow band FM with AM ? 2
- (6) The peak to peak voltage of an AM wave is 112V. The maximum dip-to-dip voltage is 48V. Determine modulation index and percentage of the AM wave. 1
- (7) Write down the truth table of a full adder circuit. Draw the digital circuit to implement the same. 2+3
- (8) What is the tunnel diode? Draw its current – voltage characteristics curve. Explain the same using energy band diagram. 1+1+3
- (9) Using the neat circuit diagram explain the operation of non-inverting amplifier. 5
- (10) Draw a small signal h-parameter equivalent circuit of a transistor in common-emitter configuration. Obtain the voltage gain in terms of device and circuit parameter. 2+3
- (11) What is the multivibrator? Draw the circuit diagram of a transistorised astable multivibrator. Explain the principle of operation of the same with proper waveforms. 2+3+5
- (12) What do you mean by amplitude modulation? Draw the waveform of an amplitude modulation (AM) wave. Define amplitude modulation index. Find out the frequency components of AM wave. Explain the operation of any AM demodulation. 1+2+2+2+3