



SE-8271

B. E. III (Sem. V) Examination

May / June - 2011

Applied Electronics

(Institute Elective - II)

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उतरवडी पर अवश्य लपवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. E. 3 (Sem. 5)

Name of the Subject :
Applied Electronics

Subject Code No. : 8 2 7 1 Section No. (1, 2,.....): Nil

Seat No. :

Student's Signature

- (1) Attempt all the questions.
- (2) Make suitable assumption if needed.
- (3) Figures to the right side indicate full marks.

1 Attempt the following : 10×2=20

- (i) Enlist various power switching and control devices.
- (ii) Define intrinsic standoff ratio (η) of UJT. Also state applications of UJT.
- (iii) What are the various position control knobs available on front panel of CRO and state how it is achieved ?
- (iv) What are the advantages of Digital Storage Oscilloscope (DSO) ?
- (v) Define negative feedback. Also state disadvantage of negative feedback.
- (vi) Define the concept of fuzzy logic and where is it used ?
- (vii) Simplify the following Boolean Expression :
$$Y = (AB + C) (AB + D)$$
- (viii) Implement NAND gate using only NOR gates.
- (ix) How D-type flip flop can be realized from S-R flip flop. Also state applications of D-type flip-flop.
- (x) Define the pin function of following pins of 8051 :

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- 2 (i) Draw the structure, symbol and V-I characteristics of SCR. Also enlist various applications of SCR. 7
- (ii) Draw the Block diagram of an oscilloscope. Explain each block. Also explain CRT in detail. 8
- OR**
- 2 (i) Design a combinational logic circuit whose output is high only when majority of inputs are low. 7
- (ii) Draw the block diagram of HI-FI (audio) stereo reproducing system and write down the function of each block. 8
- 3 Attempt any **three** : 5×3=15
- (i) Comparison of Microprocessor and microcontroller.
- (ii) Write a short note on serial-in parallel out shift register.
- (iii) Write a short note on I-POD.
- (iv) Write a short note on frequency measurement meter.
- (v) Comparison of DIAC and TRIAC.
- 4 Attempt the following : 20
- (i) Enlist the limitations of open loop op-amp configuration.
- (ii) In an astable circuit, $R_A = 2.5 \text{ k}\Omega$, $R_B = 33 \text{ k}\Omega$, and $C = 0.5 \text{ }\mu\text{F}$. Calculate the ON and OFF times.
- (iii) Enlist the application of LED.
- (iv) What is photoconductive effect ? Enlist the photoconductive sensors.
- (v) State and explain any two factors affecting the output voltage of a regulated power supply.
- (vi) Classify the opto electronic devices.
- (vii) What is transducer ? Enlist the types of transducers.
- (viii) Enlist the advantages of IC regulators.
- (ix) Compare astable and monostable multivibrators.
- (x) For the non-inverting amplifier with feedback, $R_1 = 1 \text{ k}\Omega$, $R_F = 10 \text{ k}\Omega$, calculate the closed loop voltage gain of the amplifier and the feedback factor B.

- 5 (a) Draw and explain Monostable multivibrator using IC 555. 8
- (b) Enlist the ideal op-amp characteristics. Also draw and explain equivalent circuit and ideal voltage transfer curve. 7
- OR**
- 5 (a) What is photovoltaic effect ? Enlist the photovoltaic sensors and explain any one in detail. 8
- (b) Draw and explain block diagram of a typical op-amp. 7
- 3 Attempt any **three** of the following : 15
- (i) Operational amplifier parameter
- (ii) LVDT
- (iii) SMPS
- (iv) Optocoupler
- (v) Draw the block diagram of IC-555.
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