

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 9 ]

[ ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 4

Total No. of Questions : 9 ]

[ Total No. of Printed Pages : 4

ಸಂಕೇತ ಸಂಖ್ಯೆ : **J.T.S. – III**

Code No. : **J.T.S. – III**

ವಿಷಯ : ಎಲಿಮೆಂಟ್ಸ್ ಆಫ್ ಎಲೆಕ್ಟ್ರಾನಿಕ್ಸ್ ಎಂಜಿನಿಯರಿಂಗ್ – III

Subject : **ELEMENTS OF ELECTRONICS ENGINEERING – III**

ದಿನಾಂಕ : 04.04.2009

Date : 04.04.2009

ಸಮಯ : ಬೆಳಿಗ್ಗೆ 10-30 ರಿಂದ ಮಧ್ಯಾಹ್ನ 1-30 ರವರೆಗೆ ]

[ ಪರಮಾವಧಿ ಅಂಕಗಳು : 90

Time : 10-30 A.M. to 1-30 P.M. ]

[ Max. Marks : 90

Note : Answer all the questions.

I. Fill in the blanks with the appropriate figure/word(s) by selecting from the choices given in the brackets :  $10 \times 1 = 10$

i) The base or radix of a binary system is .....

( 2, 4, 10 )

ii) Only P-type or N-type material acts as a common .....

( insulator, register, conductor )

iii) Silicon diode requires a minimum forward bias ( knee voltage ) of ..... volt. ( 0.1, 0.3, 0.7 )

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iv) CRT is the heart of ..... . ( *oscilloscope, oscillator, inverter* )

v) The numbers used in arithmetic are called ..... number.  
( *hexadecimal, decimal, fractional* )

vi) ..... converts *a.c.* to *d.c.*  
( *Inverter, Converter, Rectifier* )

vii) In a NOT gate output is ..... when input is high.  
( *constant, low, very high* )

viii) A transistor is used for ..... purpose.  
( *amplification, rectification, purification* )

ix) Flip-flop is ..... memory element.  
( *four bit, two bit, one bit* )

x) Logic circuits used in ..... .  
( *registers, computers, counters* )

II. a) What is semi-conductor ? Give two examples. 2

b) List any *three* methods of manufacturing the transistors. 3

c) With a neat sketch, explain the working of P-N junction diode in forward bias condition. 5

III. a) Name the materials used in construction of LED and list the colour of light they emits. 3

b) What is rectifier ? How are the rectifier circuits classified ? 4

c) Draw a neat diagram of half-wave rectifier. 3

- IV. a) Define the term amplifier. On the basis of frequency, how are the amplifiers classified ? 3
- b) What are the essential requirements of an oscillator ? 3
- c) Draw a neat block diagram of cathode ray oscilloscope and label its parts. 4
- V. a) Define integrated circuit. Mention any *four* advantages of operational amplifier. 4
- b) Draw the symbol and the ideal equivalent circuit of an Op-Amp. 4
- c) List any *four* applications of Op-Amp. 2
- VI. a) Convert 1512 into binary number. 5
- b) Write the symbols of the following : 3
- i) AND gate
- ii) OR gate
- iii) NAND gate.
- c) Mention any *two* applications of logic gates. 2
- VII. a) Draw a circuit of simple NOT gate and explain briefly. 5
- b) What is Flip-flop ? 2
- c) Name any *three* types of shift register. 3

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- VIII. a) Explain the following terms : 5
- i) Linear I.C.
  - ii) Non-linear I.C.
- b) Name the types of I.C. packages. 3
- c) Write the truth table of AND gate. 2
- IX. a) Define microprocessor. 2
- b) Draw a neat sketch of transistor NOR circuit. 5
- c) Explain the terms LSI and VLSI. 3
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