

Printed Pages : 4



EC201/EEC201

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 199214

Roll No.

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|

B. Tech.

(SEM. II) THEORY EXAMINATION, 2014-15  
ELECTRONICS ENGINEERING

Time : 3 Hours]

[Total Marks : 100

- Note : (1) Attempt all questions.  
(2) All questions carry equal marks.

- 1 Attempt any four parts of the following: 5×4=20  
(a) With the help of the circuit diagram explain the working of voltage doubler circuit.  
(b) For the network of Fig. 1, determine the range of  $V_i$  that will maintain  $V_L$  at 8 V and not exceed the maximum power rating of the Zener diode.

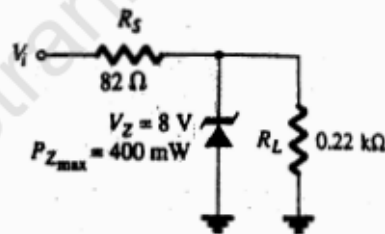


Fig.1

[7200]

199214]

1

[ Contd...

(c) Determine  $V_o$  for the given network shown in Fig. 2

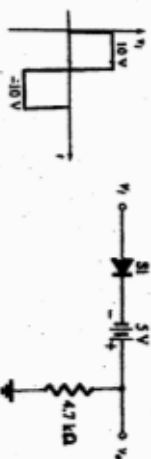
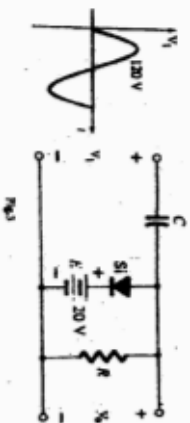


Fig. 2

- (d) Write short notes on Tunnel Diode with necessary diagram.  
(e) Find out the ripple factor and efficiency of full wave Bridge rectifier.  
(f) Sketch  $V_o$  for the given network shown in Fig. 3 for the input shown.



2 Attempt any four parts of the following:  $5 \times 4 = 20$

- (a) Draw the input and output characteristics of CB npn transistor configuration with proper labels.  
(b) For the common emitter amplifier configuration using Hybrid equivalent model, determine  $Z_i, Z_o, A_v$   
(c) Derive the stability factor  $S(\beta)$  for the emitter bias configuration.  
(d) Find out  $I_C, I_E, V_{CE}$  of the fig. 4.  
(e) Explain with necessary diagram how BJT works as switch  
(f) What is a well-designed voltage divider biasing circuit? Explain.

199214] 2 [Contd...

3 Attempt any four parts of the following.  $5 \times 4 = 20$

- (a) Define Op-Amp with the help of block diagram. Also describe the ideal characteristics of IC-741.  
(b) Explain:  
(i) Differential circuit using Op-Amp.  
(ii) Unity gain amplifier using Op-Amp.  
(c) For the network of Fig. 5,  $V_D = 9V$ . Determine  $I_D, V_{GS}, V_{DS}, V_p$   
(d) Explain the construction and working of n channel enhancement type MOSFET.  
(e) Explain how FET used as Voltage Variable Resistance? Find out the output voltages of the Fig. 6.

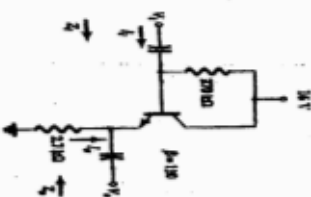


Fig. 4

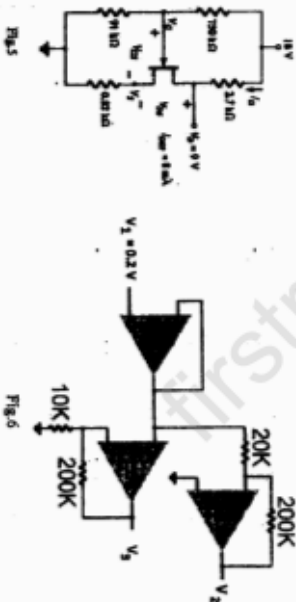


Fig. 5

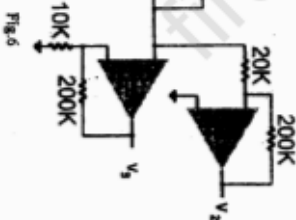
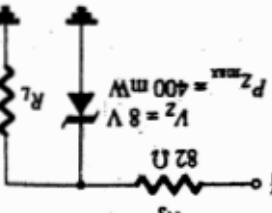


Fig. 6

199214] 3 [Contd...

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <p>1</p> <p>199214]</p> <p>Fig.1</p>  <p>Attempt any four parts of the following:</p> <p>(a) With the help of the circuit diagram, explain the working of voltage divider circuit.</p> <p>(b) For the network of Fig. 1, determine the maximum power rating of the Zener diode that will maintain <math>V_L</math> at 8V.</p> <p>Note : (1) Attempt all questions. (2) All questions carry equal marks.</p> <p>Time : 3 Hours]</p> <p>ELECTRONICS ENGINEERING</p> <p>B. Tech.</p> <p>(SEM. II) THEORY EXAMINATION</p> <p>PAPER ID : 199214</p> <p>Roll No. _____</p> <p>Printed Pages : 4</p> | <p>4</p> <p>[7200]</p> <p>Attempt any two parts of the following:</p> <p>(a) Explain the basic principle of digital voltmeter with the help of block diagram.</p> <p>(b) Explain how frequency and phase can be measured using CRO.</p> <p>(c) Draw a neat block diagram of a cathode ray oscilloscope with proper labels. Also explain its working principle.</p> <p>Attempt any two parts of the following:</p> <p>(a) Simplify the following expression using K-map and implement the output using universal logic gates.</p> $F(A,B,C,D) = \sum m(1,3,4,6,8,9,13,15) + \sum d(0,2,14)$ <p>(b) Simplify the following expression using Boolean algebra:</p> $F = AB + A(B+C) + B(B+C)$ $F = \overline{A}BCD + \overline{A}BD + \overline{A}BCD + \overline{A}B + BC$ <p>(c) Add and Subtract without converting their base of the following two Hexadecimal numbers, A4F7B and 3FDC.</p> <p>(ii) What are universal gates? Implement two inputs XOR gate using only 4 NAND Gates.</p> <p>(iii) Convert the Binary number (101011001110011) to a Gray number. Also convert Gray number (111001100011) to Binary number.</p> | <p>199214]</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|