SVKM's NMIMS
MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Programme:MBA Tech (All Streams) Year: I Semester: II

Academic Year: 2017-2018

Subject:Basic Electronics

Date:08 May 2018

Marks:70
Time: 10.00 am to 1.00 pm
Durations: 3 (hrs)
No. of Pages : 02

Final Examination

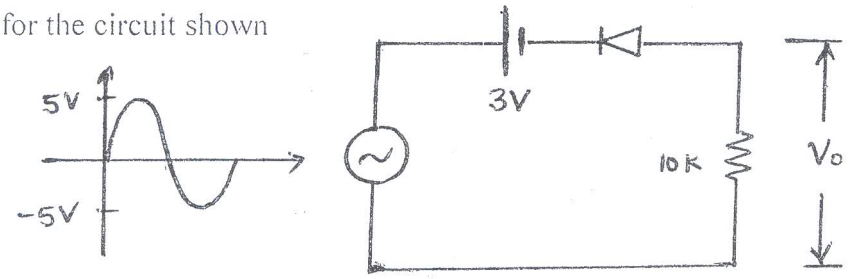
Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

1) Question No. 1 is compulsory.
2) Out of remaining questions, attempt any 4 questions.
3) **In all 5 questions to be attempted.**
4) All questions carry equal marks.
5) **Answer to each new question to be started on a fresh page.**
6) **Figures in brackets on the right hand side indicate full marks.**
7) **Assume suitable data if necessary.**

Q1. **Attempt any four** 14

a Define the common base and common emitter current gain and find the relation between them.

b Determine V_o for the circuit shown



c Draw the construction for n-channel D-MOSFET and also draw its transfer characteristics.

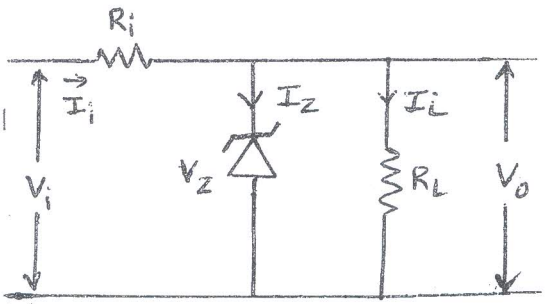
d Explain Barkhausen's criterion for sustained oscillation.

e Classify the power amplifier based on output waveforms.

Q2a In the voltage regulator circuit shown in figure below V_i=20V, Vz = 10V, R_i = 222Ω, $P_{z(max)}$ = 400 mW, Determine 6

i) I_L, I_z, and I_i if R_L=380Ω,

ii) determine the value of R_L that will establish $P_{z(max)}$ in the diode



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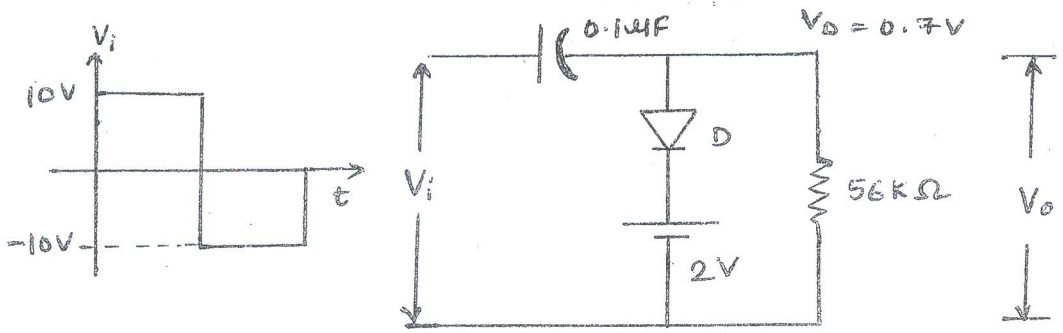
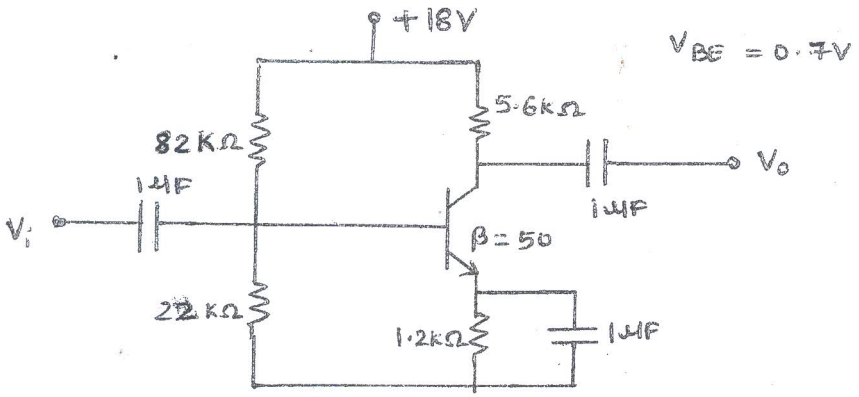
Q2b Explain the operation of C- filter with full wave rectifier 4

Q2c Determine the output waveform for the circuit shown below 4



Q3a Derive the expression for stability factor SIco for voltage divider bias. 7

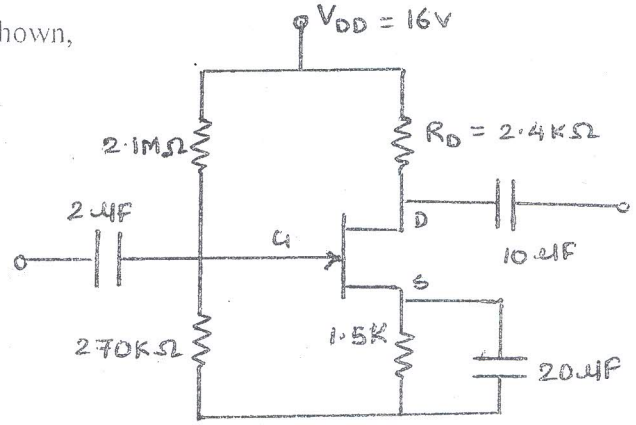
Q3b Find Q point for the circuit shown. 7



Q4a Determine Q-point for the circuit shown, 7

$I_{DSS} = 8mA$

$V_{GS(off)} = -4V$



Q4b Draw and explain the circuit diagram for class A direct coupled power amplifier and write down the expression for its efficiency. 7

Q5a Draw the circuit-diagram and explain the operation of RC- phase shift oscillator 7

Q5b Draw the circuit diagram for Hartley's Oscillator and write expression for the frequency of oscillation. 7

Q6a Compare different rectifier circuits. 7

Q6b Explain with diagram the class B push pull amplifier and write down the maximum efficiency. 7

Q7 Write short note on

a Early effect in BJT 4

b Schottky diode 5

c Photo diode 5