DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Summer Examination – 2023

Course: B. Tech. **Branch: E&TC/ECE** **Semester: III**

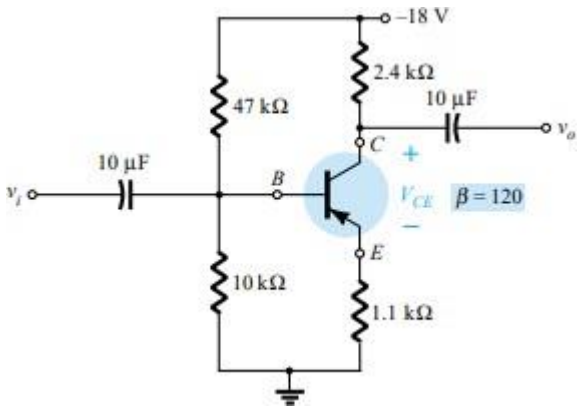
Subject Code & Name: (BTETC302/BTEXC302) Electronic devices & circuits

Max Marks: 60 **Date:10/8/2023** **Duration: 3 hours**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

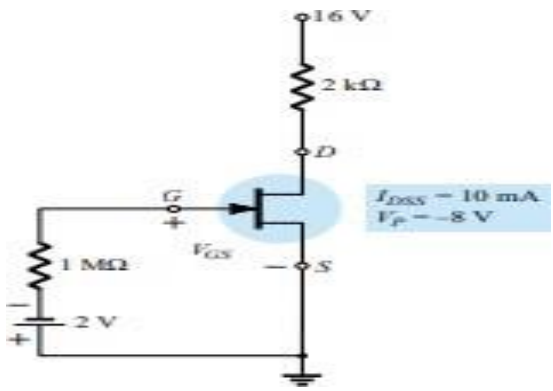
		Level/(CO)	Marks
Q. 1)	**Solve Any Two of the following.**		**12**
A)	**What is BJT? Explain in detail.**	**1/7**	**6**
B)	**Determine V_{CE} for the voltage divider bias configuration?**	**1/3**	**6**



C)	**Draw a neat diagram of cascaded amplifier and explain in detail.**	**1/3**	**6**

Q. 2)	**Solve Any Two of the following.**		**12**
A)	**Explain construction & characteristics of JFET.**	**2/1**	**6**
B)	**Determine the following parameter for given figure**	**2/1**	**6**

(a)V_{GSQ}.
(b) I_{DQ}.
(c) V_{DS}.
(d) V_D.
(e) V_G.
(f) V_S.



C)	**Write short notes on CMOS.**	**1/5**	**6**

Q. 3)	**Solve Any Two of the following.**		**12**
A)	**Write short note on Transformer coupled class A power amplifier.**	**1/5**	**6**
B)	**Derive Expression for Maximum Efficiency of Class B Power Amplifier?**	**2/1**	**6**
C)	**Calculate the efficiency of a class B amplifier for a supply voltage of VCC = 24 V with peak output voltages of:** **(a) VL (p) =22 V.** **(b) VL(p) = 6 V.**	**1/1**	**6**

Q. 4)	**Solve Any Two of the following.**		**12**
A)	**What is feedback? Explain its types in detail.**	**2/1**	**6**
B)	**Determine the voltage gain, input, and output impedance with feedback for voltage series feedback having A= -100, Ri = 10 kΩ, Ro = 20 kΩ for feedback of (a) β= - 0.1 and (b) β= - 0.5**	**1/7**	**6**
C)	**Explain feedback amplifier in detail.**	**2/3**	**6**

Q. 5)	**Solve Any Two of the following.**		**12**
A)	**Explain RC phase shift oscillator in detail.**	**1/1**	**6**
B)	**The tuned collector oscillator circuit used in the local oscillator of a radio receiver makes use of an LC tuned circuit with L1 = 58.6 µH and C1 = 300 pF.Calculate the frequency of oscillations.**	**2/5**	**6**
C)	**Write short note on Colpitts oscillator.**	**2/5**	**6**

***** End *****