

**B.TECH SEM - V (2007 COURSE) (E & TC ENGG.) : WINTER -
2017**

SUBJECT: ELECTORNICS CIRCUIT DESIGN

Day: **Saturday**
Date: **13/01/2018**

W-2017-2490

Time: **02.30 PM TO 05.30 PM**
Max Marks. **80**

N.B.:

- 1) **Q. No 1 and Q. No 5** are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each section
- 2) Figures to right indicate **FULL** marks.
- 3) Answers to both the section should be written in **SEPARATE** answer book
- 4) Use of non – programmable calculator is **ALLOWED**

SECTION – I

- Q.1**
- a) Explain in detail design consideration for system reliability and repeatability. **(06)**
 - b) With the help of block diagram explain linear and switch mode power supply. **(04)**
 - c) Give detail specification and pins functions of audio power amplifier TBA 810. **(04)**
- Q.2** Write short note on Ergonomic and aesthetic design considerations. **(13)**
- Q.3** Design step down switching regulator using IC 78S40 for 5 volt output voltage at 500 mA with input voltage 13 volts and ripple is limited to 25 mV use the design equation of device. Assume $I_D = 0.1\text{mA}$. $I_q = 2.5\text{mA}$. Also calculate the efficiency of regulator. **(13)**
- Q.4** Explain in detail protection and optimization circuits. **(13)**

SECTION - II

- Q.5** Develop ASM chart for the milk vending machine, which delivers milk bags of 1 litre capability at Rs. 3.75 /- per litre. The machine accepts the amount in coins of denomination of Rs. 2, 1, 0.5 and 0.25. The excess amount should be returned i.e. 25 paise coin only. The machine should have clearing facility in case of jamming. **(14)**
- Q.6** Explain the concept of Time division multiplexing using suitable block diagram. **(13)**
- Q.7** Write down note on advantages of Software tools for circuit design. **(13)**
- Q.8**
- a) Explain design consideration of audio power amplifiers using IC TBA 810. **(05)**
 - b) Explain synthesis process existing algorithm state machine. **(04)**
 - c) Explain need of electronics design automation. **(04)**