June 14, 2024 02:30 pm - 05:30 pm 1T00833 - S.E.(Electrical Engineering)(SEM-III)(Choice Base Credit Grading System) (R- 19) (C Scheme) / 51025 - Analog Electronics
QP CODE : 10055407

Duration:3 Hours **Total Marks:80**

Question no 1. Attempt ANY FOUR questions **(20)**

1. Draw circuit diagram and input/output waveforms of diode as negative series clipper.
2. Explain with formulae load and line regulation in the case of a voltage regulator.
3. What is the need for biasing in BJT amplifiers?
4. Explain the working of op-amp as a zero crossing detector.
5. Draw construction diagram of p-channel depletion type MOSFET.
6. Explain ideal characteristics of Op-amp IC 741

Question no 2. Attempt the following questions **(20)**

1. Draw and Explain full wave bridge rectifier along with capacitor filter with neat circuit diagram and all required waveforms.
2. Draw and explain Basics of Opto-isolator. List applications of it.

Question no 3. Attempt the following questions **(20)**

1. What are the different DC biasing techniques used for BJT? Analyze any one methods in detail.

2. **Fig.1 shows the voltage divider bias method. Draw the d.c. load line and determine the operating point Q (VCE, IC). Assume the transistor to be of silicon.**

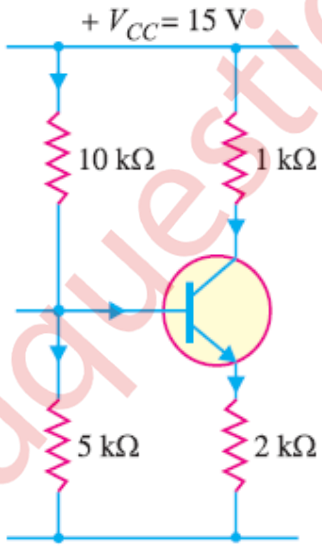

Fig 1

Question no 4. Attempt the following questions **(20)**

1. Draw and explain constructional details and transfer characteristics of n-channel depletion type MOSFET.
2. What are the different DC biasing techniques used for MOSFET? Analyze any one methods in detail.

Question no 5. Attempt the following questions **(20)**

1. Draw and explain op-amp as unity gain inverting adder for the three input voltages V1, V2 and V3.
2. Draw and explain differentiator circuit using op-amp with all waveforms and formulae.

Question no 6. Attempt the following questions **(20)**

1. Illustrate the working of IC555 as an Mostable multivibrator. list applications of it.
2. Design a voltage regulator using LM 317 to provide output voltage of 9V. Assume LM 317 regulator with load regulation providing minimum load current is greater than 10 mA Refer following fig.