



B. E. ELECTRICAL ENGINEERING (PART TIME) 1<sup>ST</sup> YEAR 2<sup>ND</sup> SEMESTER EXAMINATION, 2018  
 Subject: Electronics-II Time: 3.0 Hours Full Marks: 100

	<p>(d) Give the circuit diagram of a <b>RC phase shift oscillator</b> using <b>OPAMP</b>. Explain how oscillation principle is satisfied in this circuit? How the frequency of oscillation is determined for such oscillator?</p> <p>(b) Design a <b>RC phase shift oscillator</b> for <math>f_0 = 300</math> MHz. Given that <math>C = 0.001 \mu F</math>.</p>	
5.	<p>(a) What do you meant by multivibrator? Distinguish between different types of multivibrators.</p> <p>(b) Mention the area of application of <b>multivibrator</b>?</p> <p>(c) Gives the internal circuit diagram of <b>IC 555</b> and specify the components and devices are used.</p> <p>(d) Explain the operation of <b>Astable multivibrator</b> using <b>555 IC</b> with necessary circuit diagram.</p>	(2+3)+2+5+(4+4)
6.	<p>(a) Give the circuit diagram of a Darlington Pair transistor. Mention the special features of this pair. Show that the current gain of this pair is equal to the product of the individual transistor current gain.</p> <p>(b) Describe how a <b>transistorised series voltage regulator</b> provides a steady state output voltage against the input voltage fluctuation?</p>	(2+2+6)+10
7.	<p>(a) Define ripple of a rectifier system. How it is mathematically defined? Give the circuit diagram of full wave rectifier filter circuit and show that the ripple is considerably reduced with this circuit.</p> <p>(b) Which configuration of bipolar transistor configuration gives the voltage gain nearly equal to 1? Give the circuit diagram and output characteristics of this configuration. Where this type of configuration is used?</p>	(2+2+3+5)+(1+2+3+2)
8.	<p>(a) Explain the operation of a 2 input TTL NAND gate with suitable circuit diagram.</p> <p>(b) Explain the operation of a 2-input CMOS NOR gate with suitable circuit diagram</p>	10+10

\*\* The symbol ' indicates the complement.