

T.Y.B.SC. SEM – V (2014 COURSE) : SUMMER - 2018
SUBJECT : PHYSICS ADVANCED ELECTRONICS

Day : **Wednesday**
Date : **18/04/2018**

Time : **03.00 PM TO 05.00 PM**
Max. Marks : 40.

S-2018-0747

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the **RIGHT** indicate full marks.
 - 3) Draw neat diagrams **WHEREVER** necessary.
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Q.1 Attempt any **TWO** of the following: **(10)**

- a) Describe N-channel FET with diagram. Draw its characteristic and explain .
- b) Obtain an expression for efficiency of transformer coupled amplifier.
- c) Explain class A push pull amplifier with diagram.

Q.2 Attempt any **TWO** of the following: **(10)**

- a) Explain series regulated power supply with diagram. Derive necessary formula.
- b) Write a short note on ' Phase shift oscillator'.
- c) Design astable multivibrator of frequency 2 KHz using IC 555.
(Given $C = 0.1 \mu\text{F}$ and Duty cycle = $D = 0.6$)

Q.3 Attempt any **TWO** of the following: **(10)**

- a) Explain Operational amplifier. Obtain an expression for gain in case of inverting amplifier.
- b) Explain low voltage regulated power supply using IC 723 with diagram.
- c) Explain Hartly oscillator with diagram.

Q.4 Attempt any **FIVE** of the following: **(10)**

- a) Describe an application of UJT as relaxation oscillator with diagram.
- b) What is cross over distortion? Explain with diagram.
- c) Explain the application of operational amplifier as adder.
- d) Design 15 V, 20 mA regulated power supply using IC 723
- e) Explain the application of MOSFET with diagram.
- f) What is comparator? Explain with diagram.
- g) Write a short note on ' idea of DC load line'.

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