

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

Day : Monday
Date : 15/10/2018

Time : 12.00 NOON TO 02.00 PM
Max. Marks: 40.

W-2018-0840

N.B.:

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

- (a) Explain P-channel depletion type JFET with diagram. Draw the characteristic curve and explain.
- (b) Explain the low voltage regulator by using IC 723 with circuit diagram. Obtain the necessary formula.
- (c) Explain series regulated power supply using transistors with circuit diagram.

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

- (a) Write a short note on DC load line.
- (b) Explain class A push pull amplifier with circuit diagram.
- (c) Explain UJT with diagram. Draw its characteristic curve and explain.

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

- (a) Obtain an expression for efficiency of Transformer coupled amplifier.
- (b) Explain AC amplifier by using N-channel depletion type MOSFET with circuit diagram.
- (c) Design the circuit of square wave generator by using IC 555.
Given $f = 1 \text{ KHz}$, Duty cycle = 0.6 and $C = 0.1 \mu\text{F}$

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

- (a) Write a short note on AC load line.
- (b) Explain inverting amplifier by using operational amplifier.
- (c) Explain class A, Class B, class C and class AB amplifiers
- (d) Explain the Hartley oscillator with circuit diagram.
- (e) Write a short note on crossover distortion in case of class B push pull amplifier.
- (f) Design the power supply of 10 V, 40 mA by using IC 723.
- (g) Explain operational amplifier with diagram. Draw its symbol.

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