BACHELOR OF SCIENCE (CBCS-2018 COURSE)
T. Y. B. Sc. Sem-V : WINTER- 2022
SUBJECT : PHYSICS : ADVANCED ELECTRONICS

Day : Wednesday | Time : 02:00 PM-05:00 PM

Date : 14-12-2022 | **W-18409-2022** | Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the **RIGHT** indicate **FULL** marks.

Q 1. Attempt any **Two** of the following. **(12)**

(a) Explain class A push pull amplifier with circuit diagram.
(b) Describe P-channel depletion type JFET with diagram. Draw its characteristic curve & explain.
(c) Explain the astable multivibrator by using IC 555 with Block diagram and circuit diagram

Q 2. Attempt any **Two** of the following. **(12)**

(a) Explain high voltage regulator by using IC 723 with circuit diag. Obtain necessary formulae.
(b) Obtain an expression for efficiency of transformer coupled amplifier.
(c) Design the circuit of square wave generator by using IC 555. Given f = 2 KHz duty cycle =o.6 and C= 0.1 μF

Q 3. Attempt any **Two** of the following. **(12)**

(a) Explain the application of operational amplifier as adder with diagram.
(b) Describe class A, Class B, class C and class AB amplifier with diagram.
(c) Explain Wein Bridge Oscillator with circuit diagram. Derive the necessary formula.

Q 4. Attempt any **Three** of the following. **(12)**

(a) Explain differential amplifier with circuit diagram. Draw its symbol.
(b) Describe the Hartley oscillator with circuit diagram.
(c) Design the power supply of 6 V, 40 mA by using IC 723.
(d) Explain the application of operational amplifier as integrator with diagram.

Q 5. Attempt any **Four** of the following. **(12)**

(a) Explain AC amplifier by using N-channel depletion type MOSFET with circuit diagram.
(b) Write a short note on DC load line.
(c) Write a short note on crossover distortion in case of class B push pull amplifier.
(d) Explain non-inverting amplifier by using operational amplifier.
(e) What are the types of feedbacks? Obtain the expression for Barkhausen Criteria.
(f) Explain the principle of regulated power supply with diagram.

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