

D 30587

(Pages : 3)

Name.....

Reg. No.....

FIFTH SEMESTER (CBCSS-UG) DEGREE EXAMINATION, NOVEMBER 2022

Physics/Applied Physics

PHY 5B 09/APH 5B 09—ELECTRONICS (ANALOG AND DIGITAL)

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

*The symbols used in this question paper have their usual meanings.***Section A (Short Answer type)***(Answer all questions in two or three sentences,
each correct answer carries a maximum of 2 marks)*

1. Compare the efficiencies of different kinds of rectifiers.
2. Define a filter circuit.
3. Explain the operation of a Half-Wave Voltage Double.
4. Draw the circuit diagram of Common Emitter Connection.
5. Define transistor biasing.
6. What is the purpose of emitter bypass capacitor CE ?
7. Define a) gain b) frequency response.
8. List out the Advantages of Negative Voltage Feedback
9. What are the essentials of a transistor oscillator circuit ?
10. Define a Differential amplifier.
11. Define Slew Rate of an Op Amp.
12. Convert binary number 101011100 to octal.

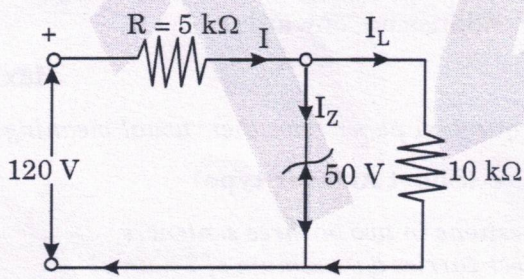
(Ceiling - 20)

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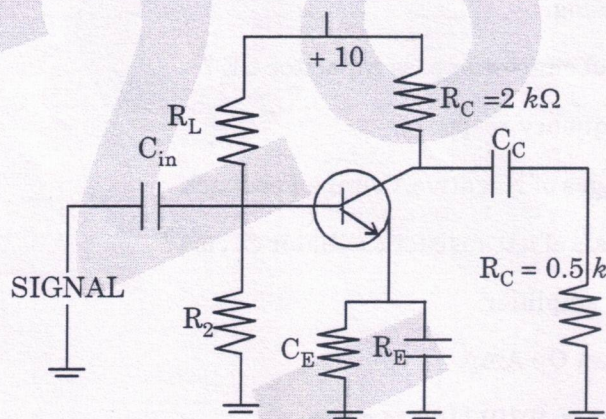
Section B (Paragraph / Problem type)

(Answer all questions in a paragraph of about half a page to one page, each correct answer carries a maximum of 5 marks)

13. For the circuit shown find : (i) the output voltage ; (ii) the voltage drop across series resistance ; (iii) the current through zener diode.



14. Derive the equation to get maximum efficiency of a full wave rectifier
15. In a common base connection, current amplification factor is 0.9. If the emitter current is 1mA, determine the value of base current
16. In the circuit shown, find the voltage gain. Given that $\beta = 60$ and input resistance $R_{in} = 1 k\Omega$.



17. The voltage gain of an amplifier without feed back is 3000. Calculate the voltage gain of the amplifier if negative voltage feedback is introduced in the circuit.
18. What are binary number systems ? How can you convert binary to decimal ? Give example.
19. Differentiate between RS Flip Flop and JK Flip flop.

(Ceiling - 30)

Section C (Essay type)

*(Essays - Answer in about two pages, any one question.
Answer carries 10 marks).*

20. With figure explain the working of a bridge rectifier. Write down the advantageous and disadvantageous.
21. Explain Common Collector Connection. Define Current amplification factor. Obtain the relation between γ and α .

(1 × 10 = 10 marks)