SRI BHAGAWAN MAHAVEER JAIN COLLEGE
Vishweshwarapuram, Bangalore 560004
Mock Examination Question Paper-2 (January 2019)

Course:	II PUC	**Subject:**	Electronics
Max. Marks:	70	**Duration:**	3:15 hrs.

Note: 1) Question paper has **four** parts **A, B, C** and **D**.

2) Part - **A** is **compulsory.**

3) Part - **D** has **two** parts. Part- **I** is from **problems.** Part- **II** is of **essay type** questions.

4) Circuit diagrams/timing diagrams/truth tables should be drawn **wherever** necessary.

5) Problems without **necessary** formula/formulae carry **no mark**.

PART- A

I. Answer **all** questions: **10 x 1 = 10**

1. Write the relation between JFET parameters.
2. What is thermal runaway?
3. Define slew rate of an opamp.
4. Write an expression for total power of an AM wave.
5. What is the main purpose of AGC?
6. What is holding current in SCR?
7. What is a self complimenting code?
8. Write the BCD equivalent of the decimal number 123.
9. What is stack pointer?
10. What is the use of 'size of' operator in C-Programming?

PART- B

II. Answer any **FIVE** questions: **5 x 2 = 10**

11. Name two types of JFET.
12. Distinguish between voltage amplifiers and power amplifiers.
13. An amplifier has bandwidth of 220kHz and voltage gain of 100. Calculate the gain and bandwidth if 10% negative feedback is introduced.
14. Distinguish between pre-emphasis and de-emphasis.
15. Is it possible to turn ON the SCR with the gate open circuited ? Explain.
16. Convert (A+B) (B+ $\overline{A}$) into canonical POS form expression.

17. Write the syntax and flow chart of 'do while' statement in C.

18. List the functions of a transponder.

PART- C

III. Answer any **FIVE** questions: **5 x 3 = 15**

19. What is voltage divider bias? Mention its advantages.

20. With a block diagram, derive an expression for voltage gain of an amplifier with negative feedback.

21. Draw the circuit diagram of a Hartley oscillator. Mention the expression for its frequency of oscillations.

22. Name the different modes of propagation of electromagnetic waves.

23. Sketch VI characteristics of SCR for different gate currents and indicate their holding current and break over voltage.

24. A basic chopper is supplied with a 220V DC source. The load is pure resistance. If the duration of the ON and OFF time are 0.3 ms and 0.5 ms respectively, determine average load voltage.

25. Draw the pin diagram of 8051 and label the parts.

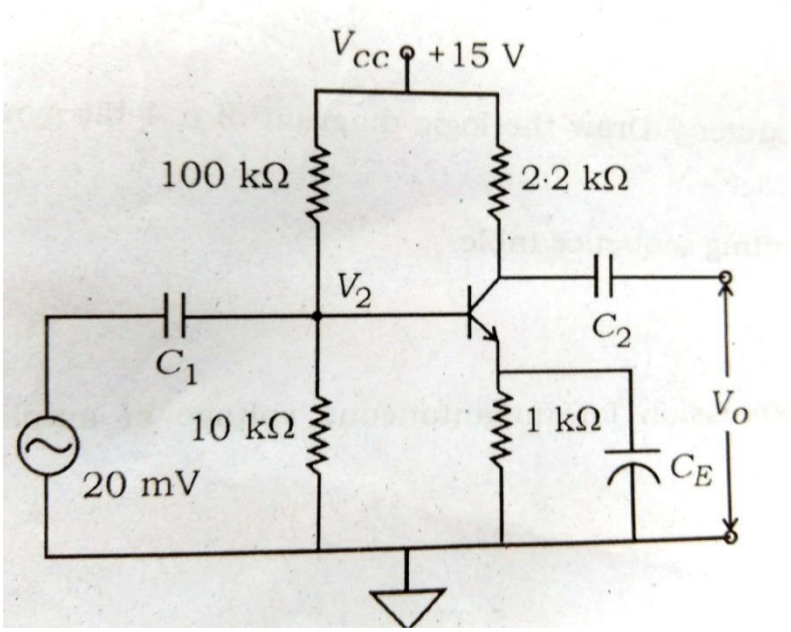
26. Mention few applications of optical fibre communication.

PART- D

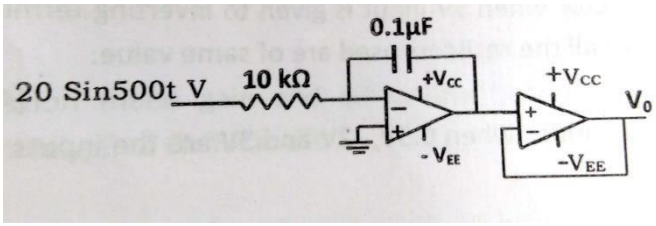
VI. Answer any **THREE** questions: **3 x 5 = 15**

27. For the given CE amplifier circuit using silicon transistor find (a) V_2 (Bias voltage)

$(b)\ I_E$ (c) re^1 (d) *zi* (*base*), (e) Zo. Given: $V_{BE} = 0.7V$, $\beta = 200$, $r_e^1 = \frac{26m \vee}{I_E}$



28. Calculate the output voltage for the circuit shown below.



29. A phase shift oscillator uses $R_1 = R_2 = R_3 = R = 220\Omega$. What should be the capacitor values $C_1 = C_2 = C_3 = C$ to get frequencies of (a) 5kHz and (b) 1kHz?

30. A 25MHz carrier is modulated by 500Hz modulating signal. If the carrier voltage is 6V and maximum deviation is 10KHz. Write the equation for the FM.

31. Simplify the boolean expression $y = \sum m\,(1, 3, 5, 6, 8, 9, 11, 12) + \sum d\,(0, 7, 14)$ using k-map. Draw the logic circuit for the simplified expression using basic gates.

PART- E

V. Answer any **FOUR** questions: **4 x 5 = 20**

32. Compare CE, CB and CC amplifier.

33. With circuit diagram explain the working of differential amplifier.

34. Derive the voltage expression of an AM wave with relevant waveforms.

35. With a logic circuit and truth table explain the working of clocked RS flipflop.

36. Write an assembly language program to add two numbers 07H and 82H and store the result at memory location 40H. Verify the result.

37. Write a C program to print the sum of first 'n'- natural numbers using 'for' loop.

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