

[128]

SEAT No. _____

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SARDAR PATEL UNIVERSITY V.V.NAGAR
S.Y. B.Sc.(IV SEM) ELECTRONICS
EXTERNAL EXAMINATION APRIL -2022
SUB.CODE -US04CELE21
ELECTRONICS DEVICES AND APPLICATION



Date :- 09/04/2022

Time :- 3:00 pm to 5:00 pm

Day :- Saturday

Total Marks :-70

Q1. Multiple Choice Questions.

[10]

- _____ is a unit of relative power.
(a) Decibels (b) Volt (c) Ampere
- In a frequency response curve the output normally remains constant over the range of frequency _____.
(a) Low (b) Middle (c) High
- _____ is the best biasing circuit.
(a) Potential Divider Bias (b) Self Bias (c) Fixed Bias
- In the symbol of enhancement mode MOSFET the line representing the channel is broken to indicate that channel does not exist unit the _____.
potential is applied.
(a) Gate (b) Drain (c) Source
- In Common source circuit the input and output signal are _____ Phase with each other.
(a) 180° out of (b) 90° out of (c) 270° out of
- Common drain amplifier circuit is also known as _____ follower.
(a) Gate (b) Drain (c) Source
- In N channel enhancement mode MOSFET the substrate is made up of _____ type semiconductor.
(a) N (b) P (c) PN
- The Dynodes are electrodes which are treated to produce _____ emission.
(a) Neuron (b) Secondary (c) Primary
- Devices for operation as solar energy converters require _____ surface area.
(a) Small (b) Large (c) Thick.
- LEDs made from _____ emit infrared radiation.
(a) GaAs (b) GaAsp (c) GAP

Q2.State whether the following statements are TRUE or FALSE .

[08]

- FET is a voltage operated device. True/False.

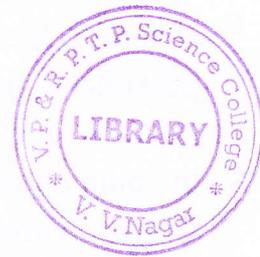
[P.T.O.]

2. In enhancement depletion MOSFET drain current present when $V_{gs} = 0$. True/False.
3. The liquid crystal display is made from inorganic compounds. True/False.
4. The output voltage of an amplifier falls off at lower frequency ends is due to coupling and by pass capacitor. True/False.
5. Lumen is unit of light intensity. True/False.
6. The FET is also known as unipolar transistor. True/False.
7. The photo darlington is capable of producing higher output current than a phototransistor. True/False.
8. Instead of base current, the input to the Photo – Transistor is in the form of light. True/False.

Q3. Answer any TEN Questions in brief.

[20]

1. List different FET parameters.
2. Explain what do you understand by stray capacitance.
3. Draw the input & output wave form of common source amplifier circuit
4. Draw the input & output wave form of common drain amplifier circuit.
5. Draw the symbols depletion enhancement mode MOSFET.
6. Draw the ac equivalent circuit of common gate amplifier.
7. List different types of opto electronics couplers.
8. Draw the symbol of photodiode and phototransistor.
9. What is dynamic scattering?
10. What is Liquid crystal display?
11. Draw the symbol of solar cell and light emitting diode.
12. Explain what do you mean V_p , (pinch off voltage).



Q4. Long Questions. [Answer any FOUR out of EIGHT]

[32]

1. Discuss in detail the construction and principle of operation of N channel JFET. [08]
2. Discuss in detail the frequency response of an amplifier giving necessary figure. [08]
3. Draw the potential divider biasing circuit using n – channel FET, Explain its working. [08]
4. Discuss in detail the depletion enhancement mode MOSFET. [08]
5. Draw the neat circuit diagram of common source amplifier and explain its working in detail & draw necessary waveform. [08]
6. Draw the neat circuit diagram of common gate amplifier, explain its working in detail & draw necessary waveform. [08]
7. With the help of necessary diagram explain the construction and working of Photomultiplier Tube. [08]
8. Give an account of LED. [08]