

PREVIEW QUESTION BANK

Module Name : nou24-ec04 Fundamental of Electronic Engineering-ENG
Exam Date : 18-May-2024 Batch : 09:00-12:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	13211001	<p>The formation of energy bands in solids is primarily a result of the overlap of:</p> <ol style="list-style-type: none"> 1. Nuclei 2. Valence electrons 3. Conduction electrons 4. Atomic orbitals <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				
2	13211002	<p>In which type of band gap transition do photons play a crucial role?</p> <ol style="list-style-type: none"> 1. Direct Band Gap 2. Indirect Band Gap 3. Variable Band Gap 4. Narrow Band Gap <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				
3	13211003	<p>As temperature increases, what happens to the Fermi-Dirac distribution function?</p> <ol style="list-style-type: none"> 1. Increases 2. Decreases 3. Remains constant 4. Fluctuates randomly <p>A1 : 1</p>	2.0	0.00

A2 : 2

A3 : 3

A4 : 4

Objective Question

4	13211004	<p>What is the primary cause of drift motion in semiconductors?</p> <ol style="list-style-type: none"> 1. Thermal agitation 2. Quantum tunneling 3. Magnetic field effects 4. Atomic collisions <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

5	13211005	<p>In semiconductors, an increase in temperature generally leads to:</p> <ol style="list-style-type: none"> 1. Decreased conductivity 2. Increased conductivity 3. No change in conductivity 4. Inverse relationship with electric field <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

6	13211006	<p>Which of the following factors does not affect diffusion current?</p> <ol style="list-style-type: none"> 1. Temperature 2. Electric field strength 3. Concentration gradient 4. Material color <p>A1 : 1</p> <p>A2 : 2</p>	2.0	0.00
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A3 : 3

A4 : 4

Objective Question

7	13211007	Which semiconductor property is responsible for the magnitude of diffusion current? 1. Resistivity 2. Mobility 3. Conductivity 4. Capacitance A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00
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Objective Question

8	13211008	Which process is responsible for the formation of the depletion region in a p-n junction diode? 1. Diffusion 2. Conduction 3. Induction 4. Transmission A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00
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Objective Question

9	13211009	What does the equivalent circuit of a forward-biased PN-junction diode represent? 1. Inductor 2. Closed switch 3. Resistor 4. Capacitor A1 : 1 A2 : 2 A3 : 3	2.0	0.00
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A4 : 4

Objective Question

10	13211010	<p>What happens to the depletion region in reverse biasing?</p> <ol style="list-style-type: none"> 1. It disappears 2. It widens 3. It remains unchanged 4. It becomes a conductor <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

11	13211011	<p>For a circuit with multiple resistors and a diode in series, how is the total resistance affected when the diode is forward-biased?</p> <ol style="list-style-type: none"> 1. Increases 2. Decreases 3. Remains the same 4. Depends on the diode type <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

12	13211012	<p>What does PIV stand for in the context of rectifiers?</p> <ol style="list-style-type: none"> 1. Primary Inverter Value 2. Peak Inverse Voltage 3. Pulse Integration Value 4. Power Inversion Variable <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p>	2.0	0.00
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A4 : 4

Objective Question

13	13211013	<p>What is the advantage of a Center-tapped Full Wave Rectifier over a Bridge Full Wave Rectifier?</p> <ol style="list-style-type: none"> 1. Lower cost 2. Higher efficiency 3. Simplicity in design 4. Higher output voltage <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

14	13211014	<p>What is the primary purpose of a Zener diode?</p> <ol style="list-style-type: none"> 1. Amplification 2. Voltage Regulation 3. Signal Rectification 4. Current Amplification <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

15	13211015	<p>In a circuit diagram of a clipper, what component is responsible for clipping the waveform?</p> <ol style="list-style-type: none"> 1. Resistor 2. Capacitor 3. Diode 4. Inductor <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p>	2.0	0.00
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A4 : 4

Objective Question

16	13211016	<p>Which type of clamper circuit shifts the entire waveform in the positive direction?</p> <ol style="list-style-type: none"> 1. Positive clamper 2. Negative clamper 3. Voltage clamper 4. Rectifying clamper <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

17	13211017	<p>In a heterojunction, what role does the energy band alignment play?</p> <ol style="list-style-type: none"> 1. It has no effect on heterojunction behavior. 2. It determines the direction of charge carriers. 3. It defines the color of the junction. 4. Energy band alignment is not applicable in heterojunctions. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

18	13211018	<p>What are the main types of transistors?</p> <ol style="list-style-type: none"> 1. Light Emitting Diode (LED) 2. Bipolar Junction Transistor (BJT) and Field Effect Transistor (FET) 3. Capacitor and Resistor 4. Inductor and Transformer <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p>	2.0	0.00
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		A4 : 4		
Objective Question				
19	13211019	<p>In a bipolar junction transistor (BJT), which region is lightly doped and acts as a barrier for majority carriers?</p> <ol style="list-style-type: none">1. Base2. Collector3. Emitter4. Source <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				
20	13211020	<p>What happens to the collector current (I_C) in a BJT when the base-emitter junction is reverse-biased?</p> <ol style="list-style-type: none">1. increases2. decreases3. remains constant4. increase sharply <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				
21	13211021	<p>In the common base configuration, which terminal is the input, and which terminal is the output?</p> <ol style="list-style-type: none">1. Input: Collector, Output: Base2. Input: Base, Output: Collector3. Input: Base, Output: Emitter4. Input: Emitter, Output: Collector <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00

Objective Question

22	13211022	<p>What is the primary purpose of the common emitter configuration in a bipolar junction transistor?</p> <ol style="list-style-type: none"> 1. Voltage amplification 2. Current amplification 3. Power amplification 4. Signal modulation <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

23	13211023	<p>What is a characteristic feature of the input impedance in a common emitter configuration?</p> <ol style="list-style-type: none"> 1. Very low 2. Very high 3. Moderate 4. Variable <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

24	13211024	<p>What is the voltage gain in the Common Collector Configuration when compared to other configurations?</p> <ol style="list-style-type: none"> 1. High 2. Moderate 3. Low 4. Varies with transistor type <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

25	13211025	<p>In the Ebers-Moll model, which current is primarily responsible for the transistor's output characteristics?</p> <ol style="list-style-type: none">1. Collector current2. Base current3. Emitter current4. Saturation current <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

26	13211026	<p>Which of the following configurations provides a high voltage gain and a low current gain?</p> <ol style="list-style-type: none">1. Common-emitter2. Common-base3. Common-collector4. Emitter-follower <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

27	13211027	<p>What is the primary function of a Field Effect Transistor (FET)?</p> <ol style="list-style-type: none">1. Amplification of signals2. Rectification of signals3. Generation of signals4. Switching of signals <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

28	13211028	<p>In a n- type JFET, the majority carriers responsible for current conduction are:</p> <ol style="list-style-type: none"> 1. Electrons 2. Holes 3. Protons 4. Neutrons <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

29	13211029	<p>Which type of charge carriers are responsible for the current flow in n-MOS?</p> <ol style="list-style-type: none"> 1. Electrons 2. Holes 3. Both electrons and holes 4. Protons <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

30	13211030	<p>Which semiconductor material is commonly used in the fabrication of MOSFETs?</p> <ol style="list-style-type: none"> 1. Silicon 2. Aluminum 3. Copper 4. Gold <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

31	13211031		2.0	0.00
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The channel conductivity in a MOSFET is primarily controlled by the:

1. Source voltage
2. Drain voltage
3. Gate voltage
4. Body voltage

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

32 13211032

2.0 0.00

When the drain-source voltage (V_{DS}) is below the threshold voltage (V_{th}) in a MOSFET, the device operates in:

1. Cut-off region
2. Triode region
3. Saturation region
4. Inversion region

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

33 13211033

2.0 0.00

In the small signal model of a MOSFET, which parameter represents the ratio of change in drain current to change in gate-source voltage?

1. Transconductance
2. Output conductance
3. Threshold voltage
4. Drain-source voltage

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

34 13211034

2.0 0.00

Which small signal model parameter is associated with the change in drain current due to a change in drain-source voltage for a MOSFET in saturation?

1. g_m (Transconductance)
2. r_{ds} (Drain-Source resistance)
3. r_o (Output resistance)
4. g_{ds} (Transconductance of the output)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

35	13211035	<p>In a differential amplifier, what does common-mode rejection ratio (CMRR) measure?</p> <ol style="list-style-type: none"> 1. The ability to amplify signals 2. The ability to reject common-mode signals 3. The gain of the amplifier 4. The frequency response of the amplifier <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

36	13211036	<p>Which term describes the difference in voltage between the two input terminals of a differential amplifier?</p> <ol style="list-style-type: none"> 1. Common-mode voltage 2. Offset voltage 3. Differential voltage 4. Feedback voltage <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

37	13211037		2.0	0.00
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What is the function of a non-inverting amplifier circuit using an op-amp?

1. Increase the signal amplitude
2. Provide phase shift of 180 degrees
3. Invert the input signal
4. Preserve the input signal phase

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

38 13211038

2.0 0.00

In a voltage follower circuit using an op-amp, the output voltage:

1. is equal to the input voltage
2. is inverted compared to the input voltage
3. is zero
4. is always positive

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

39 13211039

2.0 0.00

In an op-amp adder circuit with multiple input resistors, what is the relationship between the input voltages and the output voltage?

1. Summation
2. Multiplication
3. Division
4. Subtraction

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

40	13211040	<p>What is the purpose of the feedback resistor in an op-amp subtractor circuit?</p> <ol style="list-style-type: none"> 1. Voltage amplification 2. Current amplification 3. Voltage subtraction 4. Current subtraction <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

41	13211041	<p>How does an operational amplifier (Op-Amp) function in a voltage multiplier circuit?</p> <ol style="list-style-type: none"> 1. By reducing the voltage across the multiplier 2. By dividing the voltage across the multiplier 3. By amplifying the voltage across the multiplier 4. By oscillating the voltage across the multiplier <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

42	13211042	<p>Which configuration of operational amplifier is commonly used for voltage multiplication?</p> <ol style="list-style-type: none"> 1. Inverting amplifier 2. Non-inverting amplifier 3. Integrator 4. Differentiator <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

43	13211043		2.0	0.00
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What is the primary function of an OP-AMP integrator circuit?

1. Voltage amplification
2. Current amplification
3. Integration of input voltage
4. Differentiation of input voltage

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

44	13211044	<p>What happens to a high-frequency input signal in an OP-AMP differentiator circuit?</p> <ol style="list-style-type: none"> 1. It is amplified 2. It is attenuated 3. It is integrated 4. It is differentiated <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

45	13211045	<p>What type of device is a JFET, based on its output characteristics?</p> <ol style="list-style-type: none"> 1. Voltage-controlled resistor 2. Current-controlled resistor 3. Voltage-controlled current source 4. Current-controlled voltage source <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

46	13211046		2.0	0.00
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What is the output characteristic of a JFET?

1. Linear
2. Exponential
3. Constant
4. Quadratic

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

47 13211047

2.0 0.00

In the Common Collector Configuration, the emitter is always biased with respect to which terminal?

1. Collector
2. Ground
3. Base
4. Varies with circuit parameters

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

48 13211048

2.0 0.00

Which component in a filter circuit is most effective in reducing the ripple voltage?

1. Resistor
2. Capacitor
3. Inductor
4. Diode

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

49 13211049

2.0 0.00

In forward biasing, the diode:

1. Blocks the current flow
2. Allows the current flow
3. Acts as an insulator
4. Generates magnetic fields

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

50 13211050

2.0 0.00

In an intrinsic semiconductor, the Fermi level is located:

1. Above the valence band
2. Below the conduction band
3. At the middle of the energy gap
4. At the top of the valence band

A1 : 1

A2 : 2

A3 : 3

A4 : 4