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Default for CIT236
The default category for questions shared in context 'CIT236'.
Fill in the Blank (FBQs)
FBQ1
The efficiency of rectification is given by the ratio of the output DC power to the total amount of $\qquad$ power supplied to the circuit
*Input*
1.0000000
0.0000000

FBQ2
The differentiator is basically a $\qquad$ -pass filter

## *High*

1.0000000
0.0000000

FBQ3
Normally, bipolar $\qquad$ transistors behave as current-controlled devices.
*Junction*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ4
Field-effect transistors act as a $\qquad$ -controlled device.
*Voltage*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ5

Consider the block diagram of the pnp transistor shown above, the part labelled â€ $€^{\sim} \hat{e}^{\top M}$ is called
*Collector*
1.0000000

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0.0000000
0.0000000
0.0000000

FBQ6

Consider the block diagram of the pnp transistor shown above, the part labelled $\hat{a} €^{\top} Y \hat{} €^{\text {}} €^{\text {TM }}$ is called $\qquad$ .
*Base*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ7

Consider the block diagram of the pnp transistor shown above, the part labelled â $\epsilon^{`} Z a ̂ \epsilon^{T M}$ is called? $\qquad$ .
*Emitter*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ8
Generally, the line drawn based on the direct current operating characteristics of the circuit is referred to as a $\qquad$ line
*Load*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ9
When identifying the endpoints of a load line, IC(max) is calculated by assuming that VCE is equal to ----- $\qquad$ .

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*Zero*
1.0000000
*0*
1.0000000
0.0000000
0.0000000

FBQ10
The voltage $\qquad$ is the ratio between the output voltage and the input voltage
*Gain*
1.0000000
0.0000000

FBQ11
The $\qquad$ is responsible for stepping down the voltage level of incoming AC mains supply
*Transformer*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ12
The $\qquad$ current power supply utilizes the step down transformer
*Direct*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ13
The JFET is always operated with the Gate to Source voltage in $\qquad$ bias.
*Reverse*
1.0000000
0.0000000
0.0000000

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0.0000000

FBQ14
In the common collect configuration of a BJT, the input terminal is the base while the output terminal is the -----__and the collector is common to both the input and the output.
*Emitter*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ15
The $\qquad$ gate is also referred to as a universal gate, because it can be used to simulate the functions of $\mathfrak{a} €^{\sim} O R a ̂ €^{T M}, a €^{\sim} A N D a ̂ €^{T M}$ and $\hat{a} €^{\sim}{ }^{N}$ NOTâ $€^{T M}$ gates.
*NOR*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ16
A DC power supply whose terminal voltage remains constant regardless of the amount of current drawn from it is known as a ------ power supply.
*Regulated*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ17
factor is the ratio of the rms value of $A C$ components of the output to the DC value of the load voltage
*Ripple*
1.0000000
0.0000000
0.0000000

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0.0000000

FBQ18
The $\qquad$ gate can also be realized using the diode and the transistor
*AND*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ19
In Boolean algebra, $A+\left(B \hat{a}^{\wedge T M} C\right)=(A+B)(A+C)$ is an example of $\qquad$ law.
*Distributive*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ20
In a DC power supply, a $\qquad$ converts the $A C$ signal to $D C$.
*Rectifier*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ21
A Junction Field Effect Transistor has three terminals namely: source, drain and ---
$\qquad$ .
*Gate*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ22

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failing when it is non-conducting.

```
*Peak*
1.0000000
0.0000000
0.0000000
0.0000000
FBQ23
```

In the common emitter configuration, the input terminal is the base while the output terminal is the $\qquad$ and the emitter is common to both the input and the output.

## *Collector*

1.0000000
0.0000000
0.0000000
0.0000000

FBQ24
In the DC analysis of transistors amplifiers, all capacitors are regarded as $\qquad$ circuits.
*Open*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ25
In a DC power supply, the easiest way to smooth a circuit is by adding a in parallel to the resistive load.
*Capacitor*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ26
regulation is defined as ratio of change in output to a given change in input supply voltage of a voltage regulator circuit.

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*Line*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ27
regulation is the change in output voltage between no load current condition and full load current condition, expressed as a percentage.
*Load*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ28
regulators control or maintain a constant DC voltage output by continuously adjusting the voltage drop across a power transistor connected between the unregulated input and the load.
*Series*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ29
protection circuits prevent the current through the series pass transistor from exceeding a predetermined value.
*Overload*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ30
The measure of the AC components present in the rectifier output is known as
$\qquad$ factor.

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*Ripple*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ31
The load lines enables the visualization of the $\qquad$ characteristics
*Transistor*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ32
Basic laws of Boolean algebra are implemented as switching devices called
$\qquad$ gates
*Logic*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ33
A heat $\qquad$ is a metallic material attached to an integrated circuit chip or a high power dissipating transistor to increase the total surface area from which heat can dissipate.
*Sink ${ }^{*}$
1.0000000
0.0000000
0.0000000
0.0000000

FBQ34
In the laws of Boolean algebra, $(A+B)=(B+A)$ is an example of $\qquad$ law
*Commutative*
1.0000000

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0.0000000
0.0000000
0.0000000

FBQ35
In Boolean algebra, $(A+B)+C=A+(B+C)$ is an example of $\qquad$ law.
*Associative*
1.0000000
*Associate*
1.0000000
0.0000000
0.0000000

FBQ36

For the logic gate shown above, if the inputs $A=1$ and $B=1$, the output $Q$ is equal to
$\qquad$ . (numeric answer only)
*0*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ37

For the logic gate shown above, if the input $A=0$ and $B=1$, the output $Q$ is equal to
$\qquad$ (numeric answer only)
*1*
1.0000000
0.0000000
0.0000000
0.0000000

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FBQ38

For the logic gate shown above, if the input $A=0$ and $B=0$, the output $Q$ is equal to
$\qquad$ . (numeric answer only)
*1*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ39

For the logic gate shown above, if the input $A=1$ and $B=1$, the output $Q$ is equal to
$\qquad$ . (numeric answer only)

## *1*

1.0000000
0.0000000
0.0000000
0.0000000

FBQ40

For the logic gate shown above, if the input $A=0$ and $B=0$, the output $Q$ is equal to
$\qquad$ (numeric answer only)
*1*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ41

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For the logic gate shown above, if the input $A=0$ and $B=1$, the output $Q$ is equal to
$\qquad$ . (numeric answer only)
*0*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ42
A digital signal 101011 is applied to a NOT gate. The output is equal to
*010100*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ43

Consider the truth table shown above, the value of $Q$ is equal to $\qquad$ .
*1*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ44
The $\qquad$ gate is a logic gate which will give a high output if and only if all its inputs are high.
*AND*
1.0000000

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0.0000000
0.0000000
0.0000000

FBQ45
map is used for simplifying logic design by describing all possible combinations of the variables present in the logic function of interest
*Karnaugh*
1.0000000
*K*
1.0000000
0.0000000
0.0000000

FBQ46
Line $\qquad$ is defined as ratio of change in output to a given change in input supply voltage.
*Regulation*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ47
The â€ $\qquad$ operating areaâ $€^{T M}$ is defined as the area on the V and I curve within which the device can be operated without the risk of failure or degradation.
*Safe*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ48
The transistor when operating as a switch is biased in the saturation or cutoff region but for the transistor to be used as an amplifier, it is biased in the $\qquad$ region.
*Active*
1.0000000
0.0000000

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0.0000000
0.0000000

FBQ49
For a $\qquad$ feedback system, the feedback voltage is 180 out of phase with the input voltage.
*Negative*
1.0000000
0.0000000
0.0000000
0.0000000

FBQ50
The $\qquad$ feedback arrangement is often unstable and is mostly used in the design of oscillators.
*Positive*
1.0000000
0.0000000
0.0000000
0.0000000

Multiple Choice Questions (MCQs)
MCQ1
The $\qquad$ is NOT a Bipolar Junction Transistor configuration.

Common output
1.0000000

Common emitter
0.0000000

Common collector
0.0000000

Common base
0.0000000

MCQ2
The transistor is a three-terminal semiconductor device which can be used for $\qquad$ and switching

Moderating

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0.0000000

Transferring
0.0000000

Amplification
1.0000000

Routing
0.0000000

MCQ3
The base-emitter (BE) junction of a Bipolar Junction Transistor (BJT) acts like a diode when it is $\qquad$ -biased

Forward
1.0000000

Reverse
0.0000000
positively
0.0000000
negatively
0.0000000

MCQ4
Why is the common emitter (CE) configuration preferred for amplifiers in circuit design?
The gain for the CB configuration is always less than 1
0.0000000

The CC and CE configurations both have a high gain
0.0000000

The input impedance of the CE configuration is higher than that of the CC
1.0000000

It enables the visualization of the transistor characteristics
0.0000000

MCQ5
The load line is a line drawn based on the $\qquad$ operating characteristics of the circuit.

## Direct current

1.0000000

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Alternative current
0.0000000
current
0.0000000
voltage
0.0000000

MCQ6
can be defined as the setting up of the DC voltages and current in an electronic circuit

Biasing
1.0000000
switch
0.0000000
amplifier
0.0000000
operation
0.0000000

MCQ7
Which of the following options is NOT normally found in an amplifier circuit?
The Current Circuit
1.0000000

The Bias Circuit
0.0000000

The Load Circuit
0.0000000

The Coupling Circuit
0.0000000

MCQ8
Which of the following options is used to calculate the voltage gain?
Output voltage / Input voltage
1.0000000

Input voltage / Terminal voltage
0.0000000

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Input voltage / Output voltage
0.0000000

Output voltage / Terminal voltage
0.0000000

MCQ9
$\qquad$ is NOT true about the positive feedback arrangement of a feedback amplifier?
The feedback voltage is 180 O out of phase with the input voltage
1.0000000

This arrangement is mainly used for in oscillator design
0.0000000

It leads to instability in systems
0.0000000

The arrangement increases the input voltage amplitude
0.0000000

MCQ10
The ratio of the rms value of $A C$ components to the DC value of load voltage is referred to as the $\qquad$
Rectification Factor
1.0000000

Voltage Regulation
0.0000000

Form Factor
0.0000000

Ripple Factor
0.0000000

MCQ11
In the Series Derived Shunt-Fed Feedback Topology, the input is connected in

Series
0.0000000

Sequence
0.0000000

Parallel

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1.0000000

Linear
0.0000000

MCQ12
Zener diode can be applied in the following application areas except $\qquad$ ?

Voltage Converter
1.0000000

Voltage Regulation
0.0000000

Voltage Limiter
0.0000000

Meter Protection
0.0000000

MCQ13
In $\qquad$ , the transistor operates somewhere between saturation and cut-off state

Linear Regulator
1.0000000

Step-down Regulator
0.0000000

Step-up Regulator
0.0000000

Inverting Regulator
0.0000000

MCQ14
An $\qquad$ amplifier can perform operations such as addition, subtraction, differentiation or integration

Operational
1.0000000

Efficient
0.0000000

Optimizing
0.0000000

Consistent

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0.0000000

MCQ15
The OR gate is a Boolean mathematical equivalence of $\qquad$
Addition
1.0000000

Multiplication
0.0000000

Inversion
0.0000000

Negation
0.0000000

MCQ16
The positive feedback current is used mainly in $\qquad$
Oscillators
1.0000000

Capacitors
0.0000000

Oscilloscopes
0.0000000

Transformers
0.0000000

MCQ17
The OP AMP differentiator is basically a $\qquad$ pass filter

High
1.0000000

Low
0.0000000

Medium
0.0000000

Top
0.0000000

MCQ18
In the half wave rectifier, the output ripple frequency is $\qquad$

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Twice the input frequency
1.0000000
Equal to the input frequency
0.0000000
Zero
0.0000000
Half the input frequency
0.0000000
MCQ19Any amplifier circuit has the following parts except
$\qquad$The Electric Circuit
1.0000000
The Bias Circuit
0.0000000
The Load Circuit
0.0000000
The Coupling Circuit
0.0000000
MCQ20
A digital signal 101010 is applied to a NOT gate. what will be the output?
010101
1.0000000
010101
0.0000000
101010
0.0000000111000
0.0000000
MCQ21
$\qquad$?
Collector
1.0000000
Base

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0.0000000

Emitter
0.0000000

Supply
0.0000000

MCQ22
Which configurations of the bipolar junction transistor (BJT) has the lowest gain?
Common Base
1.0000000

Common Emitter
0.0000000

Common Drain
0.0000000

Common Collector
0.0000000

MCQ23
$\qquad$ is NOT a stage in the conversion of AC to a DC power supply.

Transformer
0.0000000

Rectifier
0.0000000

Filter
0.0000000

Thermistor
1.0000000

MCQ24
What is the output terminal of the common collector configuration of a BJT?
Collector
0.0000000

Amplifier
0.0000000

Emitter

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1.0000000

Base
0.0000000

MCQ25
Which logic gate is also known as an inverter?
OR
0.0000000

NOT
1.0000000

NOR
0.0000000

NAND
0.0000000

MCQ26
Which logic gate is also known as a universal gate?
NOR
1.0000000

OR
0.0000000

NAND
0.0000000

AND
0.0000000

MCQ27
What is the output of a $\hat{\ell^{\sim}}{ }^{\text {NOT }}$ gateâ $€^{\text {TM }}$ when the digital signal 110101 is applied to its input?

001100
0.0000000

010101
0.0000000

001010
1.0000000

110101

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### 0.0000000

MCQ28
In free air operation, the thermal resistance consists of $\qquad$ and thermal resistance from core to ambient
thermal resistance from core to junction
0.0000000

Thermal resistance from free air to ambient
0.0000000

Cut-off region
0.0000000
thermal resistance from junction to case
1.0000000

MCQ29
In Boolean algebra, $\qquad$ is a table which gives the output state for all the possible input combination

Output table
0.0000000

Truth table
1.0000000

To-do-table
0.0000000

Logic table
0.0000000

MCQ30
Which of the following basic Boolean algebraic identities is NOT correct?
$\mathrm{A}+0=\mathrm{A}$
0.0000000

A $+1=1$
0.0000000
$A \hat{a}^{\wedge}{ }^{T M} A=A$
0.0000000

A â^TM $0=1$
1.0000000

MCQ31

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In the Series Derived Shunt-Fed Feedback Topology, the input is connected in

Series
0.0000000

Serial
0.0000000

Parallel
1.0000000

Linear
0.0000000

MCQ32
In $\qquad$ , the transistor operates somewhere between saturation and cut-off state

Linear Regulator
1.0000000

Step-down Regulator
0.0000000

Step-up Regulator
0.0000000

Inverting Regulator
0.0000000

MCQ33
In voltage divider bias, the DC bias Voltage and Current are $\qquad$
Dependent on temperature
1.0000000

Independent on temperature
0.0000000

Constant
0.0000000

Negligible
0.0000000

MCQ34
Which option is the output terminal of the common emitter configuration of a BJT?
Collector

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1.0000000

Base
0.0000000

Emitter
0.0000000

Supply
0.0000000

MCQ35
The following are components of DC power supply except $\qquad$
Rectifiers
0.0000000

The Transformer
0.0000000

Half Wave Rectifier
0.0000000

Inverter
1.0000000

MCQ36
Which equation correctly represents the flow of electrons in an npn transistor?
$\mathrm{IE}=\mathrm{IB}+\mathrm{IC}$
1.0000000
$\mathrm{IC}=\mathrm{IE}+\mathrm{IB}$
0.0000000
$\mathrm{I}=\mathrm{IE}+\mathrm{IB}$
0.0000000
$\mathrm{IB}=\mathrm{IE}+\mathrm{IC}$
0.0000000

MCQ37
Which of the following configurations would you use to reduce the effect of the transistor gain on the collector current (IC) to improve system stability?

Base Bias with Collector and Emitter Feedback
0.0000000

Base Bias with Collector Feedback

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1.0000000

Voltage Divider Bias
0.0000000

Base Bias
0.0000000

MCQ38
Which Transistor Hybrid parameter is approximately equal to the ratio l̂" VBE/ l̂" IB and the forward resistance of the BE junction?
hie
1.0000000
hre
0.0000000
hfe
0.0000000
hoe
0.0000000

MCQ39
Which of the transistor hybrid parameter is calculated using the formula Î" IC / Î" VCE?
hie
0.0000000
hre
0.0000000
hfe
0.0000000
hoe
1.0000000

MCQ40
The current ratio $\widehat{\text { In }}$ IC / Î" IB is used to calculate which transistor hybrid parameter?
hie
0.0000000
hre
0.0000000
hfe

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1.0000000
hoe
0.0000000

MCQ41
Which of the following Boolean algebraic identities is NOT equal to A?
A + A
0.0000000

A + 1
1.0000000

1 * A
0.0000000

A * A
0.0000000

MCQ42
In Boolean algebra, which of the following options is an example of distributive law?
$A(B+C)=A \hat{a}^{\wedge T M} B+A \hat{a}^{\wedge}{ }^{T M} C$
1.0000000
$(A+B)+C=A+(B+C)$
0.0000000
$A+B=B+A$
0.0000000
$A(A+B)=A$
0.0000000

MCQ43
Which of the following options is a simplification of the Boolean expression: $A \hat{a}^{\wedge}{ }^{T M} B+$ A â^TM B-

B-
0.0000000

A + B-
0.0000000

A
1.0000000

B

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0.0000000

MCQ44

Consider the logic gates shown above, which of the following options is equivalent to the output Q ?
$A+B$
0.0000000

A â^TM B
1.0000000

A-+B-
0.0000000

A-â^TMB-
0.0000000

MCQ45

Consider the logic gates shown above, which of the following options is equivalent to the output Q?
$A-\hat{a}^{\wedge}{ }^{T M} B$
0.0000000
$A+B$
0.0000000

A- + B
0.0000000

A â^TM B
1.0000000

MCQ46

Consider the logic gate shown above, what is the output â€ $\AA^{\sim} Q a ̂ €^{T M}$ if two signals $A=$ 0110 and $B=0011$ are fed to the input.

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$Q=1101$
1.0000000
$Q=1101$
0.0000000
$Q=0011$
0.0000000
$Q=0101$
0.0000000

MCQ47
Which of the following options is NOT true about the common base configuration of a Bipolar Junction Transistor?

Current gain is always less than 1
0.0000000

Current gain is equal to ICIE
0.0000000

Preferred choice for current amplification
1.0000000

Has high output resistance
0.0000000

MCQ48
Which of the following materials is often used for the construction of heat sinks due to its light weight and low resistivity?

Aluminium
1.0000000

Copper
0.0000000

Zinc
0.0000000

Iron
0.0000000

MCQ49
Using Boolean algebra, $\qquad$ expression is equivalent to:
$A \hat{a}^{\wedge}{ }^{T M} B+A(C D+C D-)$

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```
A â^TM B + D-
0.0000000
A (B+C)
1.0000000
A (B + D)
0.0000000
A (B + D-)
0.0000000
MCQ50
Which of the following expressions is equivalent to (A+B) â^TM (A+C) after simplifying
using Boolean algebra?
A + (B â^TM C)
1.0000000
A+B+C
0.0000000
A â^TM (B+C)
0.0000000
A â^TM (A + C)
0.0000000
```

