

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 ____ power supplied to the circuit

Input

1.0000000

0.0000000

FBQ2

The differentiator is basically a ____-pass filter

High

1.0000000

0.0000000

FBQ3

Normally, bipolar ____ transistors behave as current-controlled devices.

Junction

1.0000000

0.0000000

0.0000000

0.0000000

FBQ4

Field-effect transistors act as a ____-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 'X' is called

Collector

1.0000000

0.0000000

0.0000000

0.0000000

FBQ6

Consider the block diagram of the pnp transistor shown above, the part labelled β_Y ™ is called _____.

Base

1.0000000

0.0000000

0.0000000

0.0000000

FBQ7

Consider the block diagram of the pnp transistor shown above, the part labelled β_Z ™ is called? _____.

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 ____ line

Load

1.0000000

0.0000000

0.0000000

0.0000000

FBQ9

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

Zero

1.0000000

0

1.0000000

0.0000000

0.0000000

FBQ10

The voltage ____ is the ratio between the output voltage and the input voltage

Gain

1.0000000

0.0000000

FBQ11

The _____ is responsible for stepping down the voltage level of incoming AC mains supply

Transformer

1.0000000

0.0000000

0.0000000

0.0000000

FBQ12

The _____ 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 _____ bias.

Reverse

1.0000000

0.0000000

0.0000000

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 _____ gate is also referred to as a universal gate, because it can be used to simulate the functions of $\sim$ OR $\hat{=}$ ™, $\sim$ AND $\hat{=}$ ™ and $\sim$ NOT $\hat{=}$ ™ 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 AC components of the output to the DC value of the load voltage

Ripple

1.0000000

0.0000000

0.0000000

0.0000000

FBQ18

The _____ gate can also be realized using the diode and the transistor

AND

1.0000000

0.0000000

0.0000000

0.0000000

FBQ19

In Boolean algebra, $A + (B \hat{=} C) = (A + B) (A + C)$ is an example of _____ law.

Distributive

1.0000000

0.0000000

0.0000000

0.0000000

FBQ20

In a DC power supply, a _____ converts the AC signal to DC.

Rectifier

1.0000000

0.0000000

0.0000000

0.0000000

FBQ21

A Junction Field Effect Transistor has three terminals namely: source, drain and ---
_____.

Gate

1.0000000

0.0000000

0.0000000

0.0000000

FBQ22

_____ inverse voltage is the maximum voltage the diode has to withstand without

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 _____ 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 ____ 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.

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 _____ factor.

Ripple

1.0000000

0.0000000

0.0000000

0.0000000

FBQ31

The load lines enables the visualization of the _____ characteristics

Transistor

1.0000000

0.0000000

0.0000000

0.0000000

FBQ32

Basic laws of Boolean algebra are implemented as switching devices called _____ gates

Logic

1.0000000

0.0000000

0.0000000

0.0000000

FBQ33

A heat _____ 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 _____ law

Commutative

1.0000000

0.0000000

0.0000000

0.0000000

FBQ35

In Boolean algebra, $(A + B) + C = A + (B + C)$ is an example of _____ 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 _____. (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 _____. (numeric answer only)

1

1.0000000

0.0000000

0.0000000

0.0000000

FBQ38

For the logic gate shown above, if the input $A = 0$ and $B = 0$, the output Q is equal to _____. (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 _____. (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 _____. (numeric answer only)

1

1.0000000

0.0000000

0.0000000

0.0000000

FBQ41

For the logic gate shown above, if the input A = 0 and B = 1, the output Q is equal to _____. (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 _____.

1

1.0000000

0.0000000

0.0000000

0.0000000

FBQ44

The _____ gate is a logic gate which will give a high output if and only if all its inputs are high.

AND

1.0000000

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 _____ 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 "_____ operating area"™ 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 _____ region.

Active

1.0000000

0.0000000

0.0000000

0.0000000

FBQ49

For a _____ 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 _____ 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 ____ 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 _____ and switching

Moderating

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 _____-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 _____ operating characteristics of the circuit.

Direct current

1.0000000

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

Input voltage / Output voltage

0.0000000

Output voltage / Terminal voltage

0.0000000

MCQ9

___ is NOT true about the positive feedback arrangement of a feedback amplifier?

The feedback voltage is 180° 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 AC components to the DC value of load voltage is referred to as the _____

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

1.0000000

Linear

0.0000000

MCQ12

Zener diode can be applied in the following application areas except _____?

Voltage Converter

1.0000000

Voltage Regulation

0.0000000

Voltage Limiter

0.0000000

Meter Protection

0.0000000

MCQ13

In _____, 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 _____ amplifier can perform operations such as addition, subtraction, differentiation or integration

Operational

1.0000000

Efficient

0.0000000

Optimizing

0.0000000

Consistent

0.0000000

MCQ15

The OR gate is a Boolean mathematical equivalence of _____

Addition

1.0000000

Multiplication

0.0000000

Inversion

0.0000000

Negation

0.0000000

MCQ16

The positive feedback current is used mainly in _____

Oscillators

1.0000000

Capacitors

0.0000000

Oscilloscopes

0.0000000

Transformers

0.0000000

MCQ17

The OP AMP differentiator is basically a _____ 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 _____

Twice the input frequency

1.0000000

Equal to the input frequency

0.0000000

Zero

0.0000000

Half the input frequency

0.0000000

MCQ19

Any amplifier circuit has the following parts except _____

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

0.0000000

111000

0.0000000

MCQ21

In the common emitter configuration, the output is derived from the _____?

Collector

1.0000000

Base

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

___ 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

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 "NOT gate"™ when the digital signal 110101 is applied to its input?

0 0 1 1 0 0

0.0000000

0 1 0 1 0 1

0.0000000

0 0 1 0 1 0

1.0000000

1 1 0 1 0 1

0.0000000

MCQ28

In free air operation, the thermal resistance consists of ____ 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, _____ 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?

$A + 0 = A$

0.0000000

$A + 1 = 1$

0.0000000

$A \hat{=} A = A$

0.0000000

$A \hat{=} 0 = 1$

1.0000000

MCQ31

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 _____, 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 _____

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

1.0000000
Base

0.0000000
Emitter

0.0000000
Supply

0.0000000
MCQ35

The following are components of DC power supply except _____

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?

$I_E = I_B + I_C$

1.0000000
 $I_C = I_E + I_B$

0.0000000
 $I = I_E + I_B$

0.0000000
 $I_B = I_E + I_C$

0.0000000
MCQ37

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

Base Bias with Collector and Emitter Feedback

0.0000000
Base Bias with Collector Feedback

1.0000000

Voltage Divider Bias

0.0000000

Base Bias

0.0000000

MCQ38

Which Transistor Hybrid parameter is approximately equal to the ratio $\hat{V}_{BE} / \hat{I}_B$ and the forward resistance of the BE junction?

h_{ie}

1.0000000

h_{re}

0.0000000

h_{fe}

0.0000000

h_{oe}

0.0000000

MCQ39

Which of the transistor hybrid parameter is calculated using the formula $\hat{I}_C / \hat{I}_B$ VCE?

h_{ie}

0.0000000

h_{re}

0.0000000

h_{fe}

0.0000000

h_{oe}

1.0000000

MCQ40

The current ratio $\hat{I}_C / \hat{I}_B$ is used to calculate which transistor hybrid parameter?

h_{ie}

0.0000000

h_{re}

0.0000000

h_{fe}

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?

$A (B + C) = A \hat{=} B + A \hat{=} C$

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: $A \hat{=} B + A \hat{=} B$ -

B-

0.0000000
 $A + B$ -

0.0000000
A

1.0000000
B

0.0000000
MCQ44

Consider the logic gates shown above, which of the following options is equivalent to the output Q?

$A + B$

0.0000000
 $A \hat{=} B$

1.0000000
 $A + B$

0.0000000
 $A \hat{=} B$

0.0000000
MCQ45

Consider the logic gates shown above, which of the following options is equivalent to the output Q?

$A \hat{=} B$

0.0000000
 $A + B$

0.0000000
 $A + B$

0.0000000
 $A \hat{=} B$

1.0000000
MCQ46

Consider the logic gate shown above, what is the output $\hat{Q}$ if two signals $A = 0110$ and $B = 0011$ are fed to the input.

Q = 1 1 0 1

1.0000000

Q = 1 1 0 1

0.0000000

Q = 0 0 1 1

0.0000000

Q = 0 1 0 1

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, ____ expression is equivalent to:

$A \hat{=} B + A (CD + CD-)$

$$A \hat{=} B + D$$

$$0.0000000$$

$$A (B + C)$$

$$1.0000000$$

$$A (B + D)$$

$$0.0000000$$

$$A (B + D)$$

$$0.0000000$$

MCQ50

Which of the following expressions is equivalent to $(A + B) \hat{=} (A + C)$ after simplifying using Boolean algebra ?

$$A + (B \hat{=} C)$$

$$1.0000000$$

$$A + B + C$$

$$0.0000000$$

$$A \hat{=} (B + C)$$

$$0.0000000$$

$$A \hat{=} (A + C)$$

$$0.0000000$$