

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 '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 '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,  $I_C(\text{max})$  is calculated by assuming that  $V_{CE}$  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 collector 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 'OR', 'AND' and 'NOT' 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\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ18

The \_\_\_\_\_ gate can also be realized using the diode and the transistor

\*AND\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ19

In Boolean algebra,  $A + (B \cdot C) = (A + B) (A + C)$  is an example of \_\_\_\_\_ law.

\*Distributive\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ20

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

\*Rectifier\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ21

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

\*Gate\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ22

\_\_\_\_\_ inverse voltage is the maximum voltage the diode has to withstand without failing when it is non-conducting.

\*Peak\*

1.00000000

0.00000000

0.00000000

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\***

1.00000000

0.00000000

0.00000000

0.00000000

FBQ34

In the laws of Boolean algebra,  $(A + B) = (B + A)$  is an example of \_\_\_\_\_ law

\*Commutative\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ35

In Boolean algebra,  $(A + B) + C = A + (B + C)$  is an example of \_\_\_\_\_ law.

\*Associative\*

1.00000000

\*Associate\*

1.00000000

0.00000000

0.00000000

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\*

1.00000000

0.00000000

0.00000000

0.00000000

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\*

1.00000000

0.00000000

0.00000000

0.00000000

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\*

1.00000000

0.00000000

0.00000000

0.00000000

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\*

1.00000000

0.00000000

0.00000000

0.00000000

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\*

1.00000000

0.00000000

0.00000000

0.00000000

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\*

1.00000000

0.00000000

0.00000000

0.00000000

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\*

1.00000000

0.00000000

0.00000000

0.00000000

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\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ49

For a \_\_\_\_\_ feedback system, the feedback voltage is 180° out of phase with the input voltage.

\*Negative\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ50

The \_\_\_\_\_ feedback arrangement is often unstable and is mostly used in the design of oscillators.

\*Positive\*

1.00000000

0.00000000

0.00000000

0.00000000

Multiple Choice Questions (MCQs)

MCQ1

The \_\_\_\_ is NOT a Bipolar Junction Transistor configuration.

Common output

1.00000000

Common emitter

0.00000000

Common collector

0.00000000

Common base

0.00000000

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

1.00000000  
switch

0.00000000  
amplifier

0.00000000  
operation

0.00000000  
MCQ7

Which of the following options is NOT normally found in an amplifier circuit?

The Current Circuit

1.00000000  
The Bias Circuit

0.00000000  
The Load Circuit

0.00000000  
The Coupling Circuit

0.00000000  
MCQ8

Which of the following options is used to calculate the voltage gain?

Output voltage / Input voltage

1.00000000  
Input voltage / Terminal voltage

0.00000000  
Input voltage / Output voltage

0.00000000  
Output voltage / Terminal voltage

0.00000000  
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

1.00000000  
This arrangement is mainly used for in oscillator design

0.00000000  
It leads to instability in systems

0.00000000  
The arrangement increases the input voltage amplitude

0.00000000  
MCQ10

The ratio of the rms value of AC components to the DC value of load voltage is referred to as the \_\_\_\_\_

Rectification Factor

1.00000000

Voltage Regulation

0.00000000

Form Factor

0.00000000

Ripple Factor

0.00000000

MCQ11

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

---

Series

0.00000000

Sequence

0.00000000

Parallel

1.00000000

Linear

0.00000000

MCQ12

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

Voltage Converter

1.00000000

Voltage Regulation

0.00000000

Voltage Limiter

0.00000000

Meter Protection

0.00000000

MCQ13

In \_\_\_\_\_, the transistor operates somewhere between saturation and cut-off state

Linear Regulator

1.00000000

Step-down Regulator

0.00000000

Step-up Regulator

0.00000000

Inverting Regulator

0.00000000

MCQ14

An \_\_\_\_\_ amplifier can perform operations such as addition, subtraction, differentiation or integration

Operational

1.00000000

Efficient

0.00000000

Optimizing

0.00000000

Consistent

0.00000000

MCQ15

The OR gate is a Boolean mathematical equivalence of \_\_\_\_\_

Addition

1.00000000

Multiplication

0.00000000

Inversion

0.00000000

Negation

0.00000000

MCQ16

The positive feedback current is used mainly in\_\_\_\_\_

Oscillators

1.00000000

Capacitors

0.00000000

Oscilloscopes

0.00000000

Transformers

0.00000000

MCQ17

The OP AMP differentiator is basically a \_\_\_\_\_ pass filter

High

1.00000000

Low

0.00000000

Medium

0.00000000

Top

0.00000000

MCQ18

In the half wave rectifier, the output ripple frequency is \_\_\_\_\_

Twice the input frequency

1.00000000

Equal to the input frequency

0.00000000

Zero

0.00000000

Half the input frequency

0.00000000

MCQ19

Any amplifier circuit has the following parts except \_\_\_\_\_

The Electric Circuit

1.00000000

The Bias Circuit

0.00000000

The Load Circuit

0.00000000

The Coupling Circuit

0.00000000

MCQ20

A digital signal 101010 is applied to a NOT gate. what will be the output?

010101

1.00000000

010101

0.00000000

101010

0.00000000

111000

0.00000000

MCQ21

In the common emitter configuration, the output is derived from the \_\_\_\_\_?

Collector

1.00000000

Base

0.00000000

Emitter

0.00000000

Supply

0.00000000

MCQ22

Which configurations of the bipolar junction transistor (BJT) has the lowest gain?

Common Base

1.00000000

Common Emitter

0.00000000

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



0.00000000

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

0.00000000

0 1 0 1 0 1

0.00000000

0 0 1 0 1 0

1.00000000

1 1 0 1 0 1

0.00000000

MCQ28

In free air operation, the thermal resistance consists of \_\_\_\_ and thermal resistance from core to ambient

thermal resistance from core to junction

0.00000000

Thermal resistance from free air to ambient

0.00000000

Cut-off region

0.00000000

thermal resistance from junction to case

1.00000000

MCQ29

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

Output table

0.00000000

Truth table

1.00000000

To-do-table

0.00000000

Logic table

0.00000000

MCQ30

Which of the following basic Boolean algebraic identities is NOT correct?

$A + 0 = A$

0.00000000

$A + 1 = 1$

0.00000000

$A \cdot A = A$

0.00000000

$A \cdot 0 = 1$

1.00000000

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  $\Delta V_{BE} / \Delta I_B$  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  $\Delta I_C / \Delta V_{CE}$ ?

hie

0.00000000

hre

0.00000000

hfe

0.00000000

hoe

1.00000000

MCQ40

The current ratio  $\Delta I_C / \Delta I_B$  is used to calculate which transistor hybrid parameter?

hie

0.00000000

hre

0.00000000

hfe

1.00000000

hoe

0.00000000

MCQ41

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

$A + A$

0.00000000

$A + 1$

1.00000000

$1 * A$

0.00000000

$A * A$

0.00000000

MCQ42

In Boolean algebra, which of the following options is an example of distributive law?

$A (B + C) = A \cdot B + A \cdot C$

1.00000000

$(A + B) + C = A + (B + C)$

0.00000000

$A + B = B + A$

0.00000000

$A (A + B) = A$

0.00000000

MCQ43

Which of the following options is a simplification of the Boolean expression:  $A \cdot B + A \cdot B -$

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 · B

1.0000000

A-+B-

0.0000000

A- · B-

0.0000000

MCQ45

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

A- · B

0.0000000

A + B

0.0000000

A- + B

0.0000000

A · B

1.0000000

MCQ46

Consider the logic gate shown above, what is the output '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

0.00000000

Q = 0 0 1 1

0.00000000

Q = 0 1 0 1

0.00000000

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

0.00000000

Current gain is equal to ICIE

0.00000000

Preferred choice for current amplification

1.00000000

Has high output resistance

0.00000000

MCQ48

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

Aluminium

1.00000000

Copper

0.00000000

Zinc

0.00000000

Iron

0.00000000

MCQ49

Using Boolean algebra, \_\_\_\_ expression is equivalent to:

$A \cdot B + A (CD + CD^-)$

$A \cdot B + D^-$

0.00000000

$A (B + C)$

1.00000000

$A (B + D)$

0.00000000

$A (B + D^-)$

0.00000000

MCQ50

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

$A + (B \cdot C)$

1.00000000

$$A + B + C$$

$$0.00000000$$

$$A \cdot (B + C)$$

$$0.00000000$$

$$A \cdot (A + C)$$

$$0.00000000$$