

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 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 α 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)

Q

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)

MCQ 1

Give reason to why ethanoate ions are called conjugate base of an ethanoic acid?

Because ethanoate can accept proton to become ethanoic acid

1.0000000

Because ethanoate ion can donate another proton to water

0.0000000

Because ethanoate is the ionic form of ethanoic

0.0000000

Because ethanoate is formed by the loss of proton from ethanoic acid

0.0000000

MCQ 2

The pair of acid and its conjugate base or base and its conjugate acid is called?

Conjugate acid pair

0.0000000

Conjugate base pair

0.0000000

Conjugate acid-base pair

1.0000000

Conjugate base-proton pair

0.0000000

MCQ 3

Methylammonium ion is a conjugate base of methylamine. True or false?

True

0.0000000

False

1.0000000

Very true

0.0000000

undefined

0.0000000

MCQ 4

Hydroxyl ion is a conjugate base of water. True or false?

True

1.0000000

Partially true

0.0000000

False

0.0000000

Undefined

0.0000000

MCQ 5

Acids are electron pair acceptors and bases are electron donors according to_____

Lewis

1.0000000

bronsted

0.0000000

Lowry

0.0000000

Bronsted-lowry

0.0000000

MCQ 6

Henderson-Hasselbulch equation relates which parameters?

PKa and PKe

0.0000000

PKa and [HA]

0.0000000

PKa and PH

1.0000000

PH and [HA]

0.0000000

MCQ 7

The PKa values for some bronsted acids are (E= 25, F= 19, G= -6 and H= -7), which of these acids is the strongest?

E

0.0000000

F

0.0000000

G

0.0000000

H

1.0000000

MCQ 8

Which of these statements is not true about the strength of a conjugate base?

The stronger the acid the weaker will be its conjugated base

0.0000000

The stronger the acid, stronger will be its conjugate base

1.0000000

Stronger the acid the lower its PKa value

0.0000000

Stronger the acid the higher its PKa value

0.0000000

MCQ 9

Arrange these groups in the order of increasing basicity.

-OH>RO->RCOO->-CH₃>NH₂-

0.0000000

NH₂->-CH₃>RCOO->RO->-OH

0.0000000

-CH₃>NH₂->RO->-OH>RCOO-

1.0000000

RCOO->-OH>RO->NH₂->-CH₃

0.0000000

MCQ 10

What are those factors which affect the strength of an acid or base?

Covalent and inductive effects

0.0000000

Steric and inductive effects

1.0000000

Covalent and steric effects

0.0000000

Presence of functional group only

0.0000000

MCQ 11

When an electron donating atom X is introduced in to the adjacent carbon atom of an ethanoic acid, what will become of the strength of that acid?

The strength of the acid will increase

0.0000000

The strength of the acid will decrease

1.0000000

The acidic strength will be constant

0.0000000

The electron density will increase

0.0000000

MCQ 12

Groups which donate electrons by resonance are called?

+R group

1.0000000

-R group

0.0000000

Proton group

0.0000000

All of the above

0.0000000

MCQ 13

What is a steric effect?

The effect arising from donating electrons

0.0000000

Effect arising from electron localization

0.0000000

Effect arising from accepting an electron

0.0000000

Effect arising from spatial interaction between the groups

1.0000000

MCQ 14

Hyper conjugation involves?

The conjugation of sigma and Dalton electrons

0.0000000

The conjugation of sigma and pi electrons

1.0000000

The conjugation of pi and Dalton electrons

0.0000000

The conjugation involving pi and alpha electrons

0.0000000

MCQ 15

A phenomenon where bulky groups shield reagents from reaching the active site which in turn affects reaction, is called?

Electron cloud effect

0.0000000

Resonance effect

0.0000000

Steric hindrance

1.0000000

Conjugated hybrid

0.0000000

MCQ 16

What is solvation?

The interaction of dissolve specie in the presence of solvent

0.0000000

The interaction of various mixture of solvent in the presence of dissolved species

0.0000000

The interaction of acid with base in the presence of solvent

0.0000000

Interaction of dissolved species and the solvent molecules surrounding the species

1.0000000

MCQ 17

Solvent shell is?

Molecular shell of solvent

0.0000000

Solvent molecule surrounding dissolving species

1.0000000

Dissolving species surrounding solvent molecules

0.0000000

Solvents-dissolving species interaction

0.0000000

MCQ 18

The rapid and reversible inter-conversion of isomers which are related to each other with the actual movement of electrons as well as one or more atoms is refer to as?

Isomerisation

0.0000000

Resonance effect

0.0000000

Steric hindrance effect

0.0000000

Tautomerism

1.0000000

MCQ 19

Keto-enol tautomer is an example of proton tautomers True or false?

True

1.0000000

False

0.0000000

Partially true

0.0000000

Indifferent

0.0000000

MCQ 20

The two types of tautomerism include?

Proton and valence tautomerism

1.0000000

Proton and ring chain tautomerism

0.0000000

Valence and ring chain tautomerism

0.0000000

Keto-enol and proton tautomerism

0.0000000

MCQ 21

All are differences between tautomerism and resonance except?

Tautomerism involves changes in hybridization of atoms whereas resonance does not.

0.0000000

Tautomers have physical reality whereas resonance structures are imaginary

0.0000000

Tautomerism involves equilibrium between two or more tautomers while resonance does not

0.0000000

Resonance have a physical reality whereas tautomers structures are imaginary

1.0000000

MCQ 22

The process of preparing hydrocarbons by passing alkanes over hot platinum catalyst is called?

Aromatization

0.0000000

Aromatic cleavage

0.0000000

hydroforming

1.0000000

alkylation

0.0000000

MCQ 23

Benzene undergoes electrophilic addition reaction. True or false?

True

0.0000000

Partially true

0.0000000

False

1.0000000

undefined

0.0000000

MCQ 24

Benzene does not undergo friedel-craft alkylation. True or false?

True

0.0000000

Partially true

0.0000000

False

1.0000000

undefined

0.0000000

MCQ 25

In catalytic reforming, the aliphatic compound heptane will be converted to which compound?

Benzene

0.0000000

Xylene

0.0000000

Toluene

1.0000000

Ethylbenzene

0.0000000

MCQ 26

The intense UV absorption band for benzene is?

205 nm

1.0000000

3030 nm

0.0000000

255 nm

0.0000000

1450 nm

0.0000000

MCQ 27

Benzene can be isolated from the following except?

None aromatic constituents of petroleum

1.0000000

Coal tar

0.0000000

Plants oil

0.0000000

Whales oil

0.0000000

MCQ 28

The catalytic reforming method depends on _____ of aliphatic hydrocarbons

Dehydrogenation, cyclisation and isomerisation

1.0000000

Cyclisation, isomerisation and hydrogenation

0.0000000

Dehydrogenation, cyclisation and alkylation

0.0000000

All of the options

0.0000000

MCQ 29

The process where toluene and xylene are converted to benzene is called?

Hydroforming

0.0000000

Alkylation

0.0000000

Hydrodealkylation

1.0000000

Catalytic reforming

0.0000000

MCQ 30

Write down the Enrich Huckel rule for aromaticity

$[C_nH_{2n+2}]i\epsilon$

0.0000000

$[4n+2]i\epsilon$

1.0000000

$[6n+2]i\epsilon$

0.0000000

$[C_nH_{2n+1}]i\epsilon$

0.0000000

MCQ 31

According to huckel rule for aromaticity, which of these rings might be aromatic compound?

6*i*€ and 4*i*€ electrons

0.0000000

6 and 8 electrons

0.0000000

6 and 12 electrons

0.0000000

10 and 14 electrons

1.0000000

MCQ 32

The following are products of halogenation of benzene except_____?

Bromobenzene

0.0000000

Chlorobenzene

0.0000000

Nitrobenzene

1.0000000

Iodobenzene

0.0000000

MCQ 33

What is sulphonation of benzene?

The replacement of hydrogen from benzene by sulphonic group.

1.0000000

Addition of sulphonic group to benzene

0.0000000

Removal of sulphonic group from benzene

0.0000000

None of the above

0.0000000

MCQ 34

During Friedel-Craft alkylation of benzene, which one of these catalyst is required?

Lewis acid catalyst

1.0000000

Metallic oxide catalyst

0.0000000

Nitric acid and sulphuric acid catalyst

0.0000000

All of the above

0.0000000

MCQ 35

Friedel-Craft reaction is limited to which one of these?

Alkenyl halide

0.0000000

Aryl halide

0.0000000

Alkyl halide

1.0000000

Aromatic amines

0.0000000