

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\*

1.00000000

0.00000000

FBQ2

The differentiator is basically a \_\_\_\_\_-pass filter

\*High\*

1.00000000

0.00000000

FBQ3

Normally, bipolar \_\_\_\_ transistors behave as current-controlled devices.

\*Junction\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ4

Field-effect transistors act as a \_\_\_\_\_-controlled device.

\*Voltage\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ5

Consider the block diagram of the pnp transistor shown above, the part labelled 'X' is called

\*Collector\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ6

Consider the block diagram of the pnp transistor shown above, the part labelled 'Y' is called \_\_\_\_\_.

\*Base\*

1.00000000

0.00000000

0.00000000

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, IC(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 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\*

1.0000000

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

1.00000000

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\*



1.00000000

0.00000000

0.00000000

0.00000000

FBQ43

Consider the truth table shown above, the value of Q is equal to \_\_\_\_\_.

\*1\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ44

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

\*AND\*

1.00000000

0.00000000

0.00000000

0.00000000

FBQ45

\_\_\_\_\_ map is used for simplifying logic design by describing all possible combinations of the variables present in the logic function of interest

\*Karnaugh\*

1.00000000

\*K\*

1.00000000

0.00000000

0.00000000

FBQ46

Line \_\_\_\_\_ is defined as ratio of change in output to a given change in input supply voltage.

\*Regulation\*

1.00000000

0.00000000

0.00000000

0.00000000

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

0.00000000

Conjugate base pair

0.00000000

Conjugate acid-base pair

1.00000000

Conjugate base-proton pair

0.00000000

MCQ 3

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

True

0.00000000

False

1.00000000

Very true

0.00000000

undefined

0.00000000

MCQ 4

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

True

1.00000000

Partially true

0.00000000

False

0.00000000

Undefined

0.00000000

MCQ 5

Acids are electron pair acceptors and bases are electron donors according to\_\_\_\_\_

Lewis

1.00000000

bronsted

0.00000000

Lowry

0.00000000

Bronsted-lowry

0.00000000

MCQ 6

Henderson-Hasselbulch equation relates which parameters?

PKa and PKe

0.00000000

PKa and [HA]

0.00000000

PKa and PH

1.00000000

PH and [HA]

0.00000000

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

0.00000000

F

0.00000000

G

0.00000000

H

1.00000000

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

0.00000000

The stronger 'the acid, stronger will be its conjugate base

1.00000000

Stronger the acid the lower its PKa value

0.00000000

Stronger the acid the higher its PKa value

0.00000000

MCQ 9

Arrange these groups in the order of increasing basicity.

-OH>RO->RCOO->-CH3>NH2-

0.00000000

NH2->-CH3>RCOO->RO->-OH

0.00000000

-CH3>NH2->RO->-OH>RCOO-

1.00000000

RCOO->-OH>RO->NH2->-CH3

0.00000000

MCQ 10

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

Covalent and inductive effects

0.00000000

Steric and inductive effects

1.00000000

Covalent and steric effects

0.00000000

Presence of functional group only

0.00000000

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

0.00000000

The strength of the acid will decrease

1.00000000

The acidic strength will be constant

0.00000000

The electron density will increase

0.00000000

MCQ 12

Groups which donate electrons by resonance are called?

+R group

1.00000000

-R group

0.00000000

Proton group

0.00000000

All of the above

0.00000000

MCQ 13

What is a steric effect?

The effect arising from donating electrons

0.00000000

Effect arising from electron localization

0.00000000

Effect arising from accepting an electron

0.00000000

Effect arising from spatial interaction between the groups

1.00000000

MCQ 14

Hyper conjugation involves?

The conjugation of sigma and Dalton electrons

0.00000000

The conjugation of sigma and pi electrons

1.00000000

The conjugation of pi and Dalton electrons

0.00000000

The conjugation involving pi and alpha electrons

0.00000000

MCQ 15

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

Electron cloud effect

0.00000000

Resonance effect

0.00000000

Steric hindrance

1.00000000

Conjugated hybrid

0.00000000

MCQ 16

What is solvation?

The interaction of dissolve specie in the presence of solvent

0.00000000

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

0.00000000

The interaction of acid with base in the presence of solvent

0.00000000

Interaction of dissolved species and the solvent molecules surrounding the species

1.00000000

MCQ 17

Solvent shell is?

Molecular shell of solvent

0.00000000

Solvent molecule surrounding dissolving species

1.00000000

Dissolving species surrounding solvent molecules

0.00000000

Solvents-dissolving species interaction

0.00000000

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

0.00000000

Resonance effect

0.00000000

Steric hindrance effect

0.00000000  
Tautomerism

1.00000000  
MCQ 19  
Keto-enol tautomer is an example of proton tautomers True or false?

True

1.00000000  
False

0.00000000  
Partially true

0.00000000  
Indifferent

0.00000000  
MCQ 20  
The two types of tautomerism include?

Proton and valence tautomerism

1.00000000  
Proton and ring chain tautomerism

0.00000000  
Valence and ring chain tautomerism

0.00000000  
Keto-enol and proton tautomerism

0.00000000  
MCQ 21  
All are differences between tautomerism and resonance except?

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

0.00000000  
Tautomers have physical reality whereas resonance structures are imaginary

0.00000000  
Tautomerism involves equilibrium between two or more tautomers while resonance does not

0.00000000  
Resonance have a physical reality whereas tautomers structures are imaginary

1.00000000  
MCQ 22  
The process of preparing hydrocarbons by passing alkanes over hot platinum catalyst is called?

Aromatization

0.00000000  
Aromatic cleavage

0.00000000  
hydroforming

1.00000000

alkylation

0.00000000

MCQ 23

Benzene undergoes electrophilic addition reaction. True or false?

True

0.00000000

Partially true

0.00000000

False

1.00000000

undefined

0.00000000

MCQ 24

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

True

0.00000000

Partially true

0.00000000

False

1.00000000

undefined

0.00000000

MCQ 25

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

Benzene

0.00000000

Xylene

0.00000000

Toluene

1.00000000

Ethylbenzene

0.00000000

MCQ 26

The intense UV absorption band for benzene is?

205 nm

1.00000000

3030 nm

0.00000000

255 nm

0.00000000

1450 nm

0.00000000



MCQ 27

Benzene can be isolated from the following except?

None aromatic constituents of petroleum

1.00000000

Coal tar

0.00000000

Plants oil

0.00000000

Whales oil

0.00000000

MCQ 28

The catalytic reforming method depends on \_\_\_\_\_ of aliphatic hydrocarbons

Dehydrogenation, cyclisation and isomerisation

1.00000000

Cyclisation, isomerisation and hydrogenation

0.00000000

Dehydrogenation, cyclisation and alkylation

0.00000000

All of the options

0.00000000

MCQ 29

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

Hydroforming

0.00000000

Alkylation

0.00000000

Hydrodealkylation

1.00000000

Catalytic reforming

0.00000000

MCQ 30

Write down the Enrich Huckel rule for aromaticity

$[C_nH_{2n+2}]\pi$

0.00000000

$[4n+2]\pi$

1.00000000

$[6n+2]\pi$

0.00000000

$[C_nH_{2n+1}]\pi$

0.00000000

MCQ 31

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

6 $\pi$  and 4 $\pi$  electrons

0.00000000

6 $\pi$  and 8 $\pi$  electrons

0.00000000

6 $\pi$  and 12 $\pi$  electrons

0.00000000

10 $\pi$  and 14 $\pi$  electrons

1.00000000

MCQ 32

The following are products of halogenation of benzene except\_\_\_\_\_?

Bromobenzene

0.00000000

Chlorobenzene

0.00000000

Nitrobenzene

1.00000000

Iodobenzene

0.00000000

MCQ 33

What is sulphonation of benzene?

The replacement of hydrogen from benzene by sulphonic group.

1.00000000

Addition of sulphonic group to benzene

0.00000000

Removal of sulphonic group from benzene

0.00000000

None of the above

0.00000000

MCQ 34

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

Lewis acid catalyst

1.00000000

Metallic oxide catalyst

0.00000000

Nitric acid and sulphuric acid catalyst

0.00000000

All of the above

0.00000000

MCQ 35

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

Alkenyl halide

0.00000000

Aryl halide

0.0000000

Alkyl halide

1.0000000

Aromatic amines

0.0000000