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 â€~X' is called

\*Collector\* 1.0000000

0.0000000

0.0000000 FBQ6

Consider the block diagram of the pnp transistor shown above, the part labelled  $\hat{a} \in \Upsilon \hat{a} \in \mathbb{Y}$  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  $\hat{a} \in \mathbb{Z} \hat{a} \in \mathbb{W}$  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\*

1.000000
0.000000
0.0000000 FBQ10 The voltage is the ratio between the output voltage and the input voltage
*Gain* 1.000000
0.0000000 FBQ11 The is responsible for stepping down the voltage level of incoming AC mains supply
*Transformer* 1.0000000
0.000000
0.000000
0.0000000 FBQ12 The current power supply utilizes the step down transformer
*Direct* 1.000000
0.000000
0.000000
0.0000000 FBQ13 The JFET is always operated with the Gate to Source voltage in bias.
*Reverse* 1.000000
0.000000
0.000000
0.000000 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 â€<sup>-</sup>ORâ€<sup>-</sup>, â€<sup>-</sup>ANDâ€<sup>-</sup> and â€<sup>-</sup>NOTâ€<sup>-</sup> 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
0.000000
0.000000
0.0000000 FBQ19 In Boolean algebra, A + (B â <sup>^™</sup> C) = (A + B) (A + C) is an example of law.
*Distributive* 1.0000000
0.000000
0.000000
0.0000000 FBQ20 In a DC power supply, a converts the AC signal to DC.
*Rectifier* 1.0000000
0.000000
0.000000
0.0000000 FBQ21 A Junction Field Effect Transistor has three terminals namely: source, drain and
*Gate* 1.0000000
0.000000
0.000000
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

0.000000
0.000000
0.0000000 FBQ31 The load lines enables the visualization of the characteristics
*Transistor* 1.000000
0.000000
0.000000
0.0000000 FBQ32 Basic laws of Boolean algebra are implemented as switching devices called gates
*Logic* 1.000000
0.000000
0.000000
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* 1.000000
0.000000
0.000000
0.0000000 FBQ34 In the laws of Boolean algebra, (A + B) = (B + A) is an example of law
*Commutative* 1.000000
0.000000

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 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 operating areaâ€<sup>™</sup> is defined as the area on the V and I The â€~ 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 1800 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

0.000000

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 aconjugate 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

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?

Е

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

#### 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

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

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

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 frieldel-craft alkylation. True or false?

True

0.0000000 Partially true

0.0000000 False

1.0000000 undefined

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

[CnH2n+2]Ï€

0.0000000 [4n+2]Ï€

1.0000000 [6n+2]Ï€

0.0000000 [CnH2n+1]Ï€

0.0000000 MCQ 31 According to huckel rule for aromaticity, which of these rings might be aromatic compound?

6Ï€ and 4Ï€ electrons

6Ï€ and 8Ï€ electrons

0.0000000 6Ϊ€ and 12Ϊ€ electrons

0.0000000 10Ï€ and 14Ï€ electrons

1.0000000 MCQ 32 The following are products of halogenation of benzene except\_\_\_\_?

Bromobenzene

0.0000000 Chlorobenzene

0.0000000 Nitrobenzene

1.0000000 lodobenzene

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 frieldel-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 Frieldel-craft reaction is limited to which one of these?

Alkenyl halide

0.0000000 Aryl halide

0.0000000 Alkyl halide

1.0000000 Aromatic amines