[124] One of the technical limitations of capacitive proximity sensors is the fact that they
 A. Are not very sensitive to objects that are poor electrical conductors.
 B. Are insensitive to objects that reflect light.
 C. Are insensitive to metallic objects.
 D. Cannot be used with oscillators
 E. Require extreme voltages in order to function properly

[125] The power factor in an ac circuit is defined as
 (a) The actual power divided by the maximum power the circuit can handle.
 (b) The ratio of the real power to the imaginary power.
 (c) The ratio of the apparent power to the true power.
 (d) The ratio of the true power to the apparent power.
 (e) The ratio of the imaginary power to the apparent power.

[126] The amount of current that a silicon photodiode can deliver in direct sunlight depends on
 (a) The forward breakover voltage.
 (b) The thickness of the substrate.
 (c) The surface area of the P-N junction.
 (d) The applied voltage.
 (e) The reverse bias.

[127] In an amplifier that employs a P-Channel JFET, the device can usually be replaced with an N-channel JFET having similar specifications, provided that
 (a). All the resistors are reversed in polarity for the circuit in question
 (b). The power supply polarity is reversed for the circuit in question
 (c). The drain, rather than the source, is placed at signal ground
 (d). The output is taken from the source, rather than from the drain.

[128] Secondary breakdown occurs in
 (a). MOSFET but not in BJT
 (b). Both MOSFET and BJT
 (c). BJT but not in MOSFET
 (d). None of these

[129] In a transistor
 (a). $\beta = \alpha/(\alpha +1)$
 (b). $\beta = \alpha/(1- \alpha)$
 (c). $\alpha = \beta/(\beta-1)$
 (d). $\alpha = (\beta+1)/\beta$

[130] In a multi-stage RC coupled amplifier the coupling capacitor_____
 A) Limits the low frequency response
 B) Limits the high frequency response
 C) Does not affect the frequency response
 D) Block the DC component without affecting the frequency response

DIGITAL ELECTRONICS

[1] It is required to construct a counter to count upto 100(decimal). The minimum number of flipflops required to construct the counter is
 A. 8
 B. 7
 C. 6
 D. 5

[2] The gate that assumes the 1 state, if and only if the input does not take a 1 state is calleD........
 A. AND gate
 B. NOT gate
 C. NOR gate
 D. Both b and c

[3] For NOR circuit SR flip flop the not allowed condition is....

        A. S=0, R=0

        B. S=0, R=1

        C. S=1, R=1

        D. S=1, R=0

                  HINT: - When S=R=1 the output is subject to unpredictable behaviour when S and R return to 0 simultaneously.

[4] A bistable multivibrator is a

        A. Free running oscillator

        B. Triggered oscillator

        C. Saw tooth wave generator

        D. Crystal oscillator

[5] For a large values of |VDS|, a FET behave as

        A. Voltage controlled resistor

        B. Current controlled current source

        C. Voltage controlled current source

        D. Current controlled resistor

[6] When a step input is given to an op-amp integrator, the output will be

        A. a ramp

        B. a sinusoidal wave

        C. a rectangular wave

        D. a triangular wave with dc bias

[7] In a full-wave rectifier without filter, the ripple factor is

        A. 0.482

        B. 1.21

        C. 1.79

        D. 2.05

[8]Hysteresis is desirable in Schmitt-trigger, because

        A. Energy is to be stored/discharged in parasitic capacitance

        B. Effects of temperature would be compensated

        C. Devices in the circuit should be allowed time for saturation and desaturation

        D. It would prevent noise from causing false triggering

[9] For a 10-bit DAC, the Resolution is defined by which of the following

        a) 1024

        b) 1/1024

        c) 10

        d) None

[10] SRAM full form is

        a) Serial Read Access Memory

        b) Static Random Access Memory

        c) Static Read-only Access memory

[11] What are the minimum number of 2 to 1 multiplexers required to generate a 2 input AND gate and a 2 input Ex-OR gate?

        A) 1 and 2

        B) 1 and 3

        C) 1 and 1

        D) 2 and 2

[12]The output of a logic gate is '1' when all its inputs are at logic '0'. Then gate is either

    A) A NAND or an EX-OR gate

    B) A NOR or an EX-NOR gate

    C) An OR or a EX-NOR gate

    D) An AND or an Ex-OR gate

[13] A PLA can be used

    A) As a microprocessor

    B) As a dynamic memory

    C) To realise a sequential logic

    D) To realise a combinational logic

[14] A dynamic RAM consists of

    A) 6 Transistors

    B) 2 Transistors and 2 Capacitors

    C) 1 Transistor and 1 Capacitor

    D) 2 Capacitor only

[15] When a CPU is interrupted, it

    A) Stops execution of instructions

    B) Acknowledges interrupt and branches of subroutine

    C) Acknowledges interrupt and continues

    D) Acknowledges interrupt and waits for the next instruction from the interrupting device.