

**DETAILED SYLLABUS FOR THE POST OF Maintenance Engineer (Electronics)
in Kerala State Film Development Corporation Limited.**

(Cat.No. : 129/2020)

(Total Marks- 100)

MODULE - MARKS	CONTENTS
I (15 Marks)	Electronic Devices <ul style="list-style-type: none"> • Energy bands in intrinsic and extrinsic Semiconductors • Carrier transport: Diffusion current, drift current, generation and recombination of carriers, Poisson and continuity equations. P-N junction, Zener diode, BJT, MOS capacitor, MOSFET, LED, photo diode and solar cell.
II (20 Marks)	Analog Circuits <ul style="list-style-type: none"> • Diode circuits: Clipping, clamping and rectifiers. • BJT and MOSFET amplifiers: Biasing, small signal analysis, frequency response. Current mirrors and differential amplifiers. • Op-amp circuits: Amplifiers, differentiators, integrators, active filters, Schmitt triggers and oscillators.
III (20 Marks)	Digital Circuits <ul style="list-style-type: none"> • Number representations: Binary, integer and floating-point- numbers. • Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates and CMOS implementations, arithmetic circuits, multiplexers, decoders. • Sequential circuits: Latches and flip-flops, counters, shift-registers, finite state machine. • Data converters: Sample and hold circuits, ADCs and DACs. • Semiconductor memories:

	ROM, SRAM, DRAM. • Computer organization: Machine instructions and addressing modes, ALU, pipelining.
IV (15 Marks)	Communications <ul style="list-style-type: none"> Analog communications: Amplitude modulation and demodulation, angle modulation and demodulation, superheterodyne receivers. Information theory: Entropy, channel capacity theorem. Digital communications: PCM, DPCM, digital modulation schemes (ASK, PSK, FSK, QAM, Hamming codes. Computer communication
V (15 Marks)	ANALOG INTEGRATED CIRCUITS <ul style="list-style-type: none"> Differential amplifier configurations, Operational amplifiers, Active filters, Monolithic Voltage Regulators, Data converters.
VI (15 Marks)	Power Electronics <ul style="list-style-type: none"> Power Devices : Characteristics and control of MOSFET, IGBT, IGCT Switches . Power dissipation in switches Zener voltage regulators – DC – DC Converters – Buck & Boost Converters – Switched Mode Power Supply (SMPS) – Voltage Source inverters – Pulse width modulation for control of convrters – DC Motor Speed Control - Induction Meter Speed Control – Stepper motor drives.

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper

