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FOR MAHARASHTRA BOARD (MSBSHSE) CLASS 12 EXAM PREPARATION

Maharashtra Board (MSBSHSE) Class 12 2026 Question Paper · Electronics Paper 1

EXAM
Maharashtra Board (MSBSHSE) Class 12

YEAR
2026

TYPE
Question Paper

SUBJECT
Electronics Paper 1

DAY - 10 SEAT NUMBER

2026 | III | 06 | 1100 | V – 733 | (E)

ELECTRONICS
PAPER - I (C-2)

Time : 3 Hours | 3 Pages | Max. Marks : 50

Instructions : *(1) All questions are compulsory*
(2) Figures to the right indicate full marks.
(3) Draw neat labelled diagrams wherever necessary.
(4) Use of logtable is allowed.

1. (A) Select correct alternative and rewrite the following :

(a) In astable multivibrator if charging time constant is equal to discharging time constant, duty cycle is _____. 1

(i) 50%
(ii) 100%
(iii) 1%
(iv) 25%

(b) The area to be served by a cellular telephone system is divided into _____. 1

(i) region
(ii) cells
(iii) MTSO
(iv) rings

(c) _____ stage of operational amplifier rejects the noise. 1

(i) Level Shifter
(ii) Differential Amplifier
(iii) Emitter Follower
(iv) Output

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(d) The semiconductor diode is used as _____. 1

(i) Temperature Transducer

(ii) Pressure Transducer

(iii) Displacement Transducer

(iv) Piezoelectric Transducer

(B) Answer **any two** of following :

(a) A Zener voltage regulator is to be designed for output of 10 volts. If the input voltage to the regulator is 25 volts. Find the value of current limiting resistor. Given Pz = 500 mw. 3

(b) What are the drawbacks of RC coupled amplifier ? 3

(c) Explain the use of Cathode Ray Oscilloscope for measurement of AC and DC voltage. 3

(A) Answer **any two** of following :

(a) Draw the diagram showing pin connection of IC-555 and IC LM317. 3

(b) What do you mean by Network Topology ? Enlist the types of network topologies and explain any one of them with diagram. 3

(c) Write a note on LDR. 3

(B) Answer **any one** of following :

(a) In a circuit of Schmitt trigger R_1 = 10KΩ R_2 = 2KΩ Vin = 3 Vp – p sinewave, with saturation voltage of ± 13 volts. Calculate : 4

(i) UTP

(ii) LTP

(iii) Hystersis voltage

(iv) Feedback factor β

(b) State eight advantages of fibre optic cable over conventional electrical cable for communication. 4

(A) Answer **any two** of following :

(a) The turns ratio of transformer in a bridge rectifier is 12:1. Primary is connected to 230 volts, 50 Hz AC mains. Find the output of DC voltage under no load condition, assume the voltage drop across each diode to be zero. 3

(b) The deflection sensitivity of CRT is 0.04 mm/v. An unknown voltage applied to X-plates causes the deflection of spot 5mm horizontally. Find the value of unknown voltage. 3

(c) Explain the working of Piezoelectric Transducer. 3

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(B) Answer any one of following :

(a) List any four advantages of SMPS. 4

(b) Draw the circuit diagram of Inverting Operational Amplifier and obtain an expression for its gain. Explain how it can be used as sign changer. 4

4 (A) Answer any two of following :

(a) Explain the working of IC 555 as a Monostable Multivibrator. 3

(b) List three applications of simplex and three applications of duplex communication system. 3

(c) Explain how CRO displays a waveform. 3

(B) Answer any one of following :

(a) State any eight characteristics of ideal Op-Amplifier. 4

(b) Draw internal block diagram of IC555 and explain its working. 4

5 (A) Answer any two of the following :

(a) Define deflection sensitivity of CRO. What is the function of delay line in CRO ? 3

(b) A single phase half wave rectifier supplies power to 1KΩ load. The input supply voltage is 220 VRMS. Neglect the forward resistance of diode. Calculate average voltage and current in the circuit. 3

(c) What is cell in cellular phone system ? Explain in brief. 3

(B) Answer any one of following :

(a) Explain the working of centre tapped full wave rectifier and compare any two parametes in case of centre tapped full wave rectifier and bridge rectifier. 4

(b) State any two Linear and Non-linear applications of Op-Amp. 4

OR

5. (A) Answer any two of following :

(a) State any three applications of function generator. 3

(b) Explain the working of Loudspeaker with neat diagram. 3

(c) State any three advantages of Op-Amp over normal amplifier. 3

(B) Answer any one of the following :

(a) State any four points of comparison between Amplitude Modulation and Frequency Modulation. 4

(b) Give one advantage and one disadvantages of following types of filter circuits :

(i) Capacitor input filter

(ii) Inductor filter

(iii) R.C. filter

(vi) L.C. filter

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