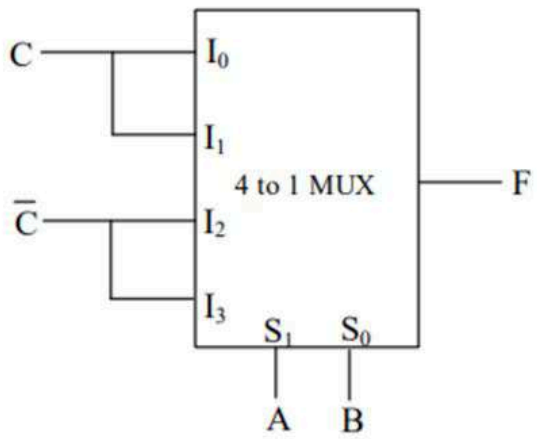
Dr. B.R.Ambedkar Institute of Technology

Recruitment for the Post of Lab Technician (ECE)

Date of Examination: 17/05/2025 **Exam Time: 10:00 AM - 11:00 AM** **Exam Slot: A1**

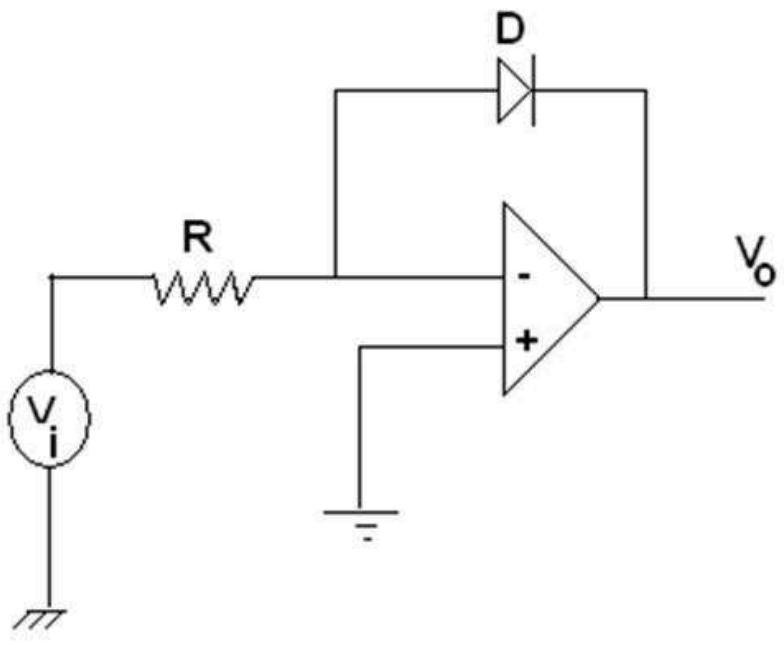
#	Question ID	Question	Answer Key
1	5292	The output of a diode detector contains **a.** D.C. voltage **b.** modulating signal **c.** RF ripple **d.** all of the above	
2	5285	The image channel selectivity of super heterodyne receiver depends upon **a.** IF amplifiers only **b.** RF and IF amplifiers only **c.** Pre selector, RF and IF amplifiers **d.** Pre selector and RF amplifiers	
3	5298	The nature of calibration signal in a CRO is **(1)** sawtooth **(2)** square **(3)** sinusoidal **(4)** Triangular	
4	5343	A diode for which you can change the reverse bias, and thus vary the capacitance is called a **a.** varactor diode **b.** tunnel diode **c.** zener diode **d.** switching diode	
5	5283	In FM broadcasting, the peak frequency deviation and the maximum audio frequency handled, are respectively **a.** 75 kHz ; 10 kHz **b.** 75 kHz ; 15 kHz **c.** 200 kHz ; 10 kHz **d.** 75 kHz ; 5 kHz	
6	5337	ASK, FSK and PSK are examples of _____ encoding **a.** Digital to Digital **b.** Digital to Analog **c.** Analog to Analog **d.** Analog to Digital	

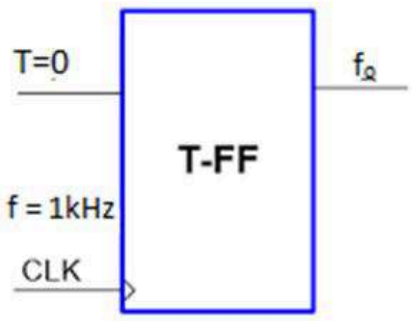
7	5264	The following GATE is equivalent to  **a.** OR gate **b.** AND gate **c.** NOR gate **d.** EXOR gate	
8	5300	The smallest change in measured value to which the instrument will respond is known as **a.** Accuracy **b.** Precision **c.** Resolution **d.** Sensitivity	
9	5257	The logic realized by the circuit shown in figure is:  **a.** $F = A \odot C$ **b.** $F = A \oplus C$ **c.** $F = B \odot C$ **d.** $F = B \oplus C$	
10	5279	In a class B amplifier, it is found that D.C. power is 25 W, find the A.C. power. **a.** 10 W **b.** 62.5 W **c.** 25 W **d.** 50 W	
11	5271	In a multi-stage RC coupled amplifier the coupling capacitor **a.** limits the high frequency response **b.** limits the low frequency response **c.** blocks the d.c. components **d.** limits the frequency components	
12	5290	When the modulation index is halved, it is found that the antenna current (r.m.s. value) is also halved. The type of modulation used is **a.** AM (carrier plus both sidebands) **b.** Single sideband plus carrier **c.** SSB-SC **d.** Vestigial sideband	

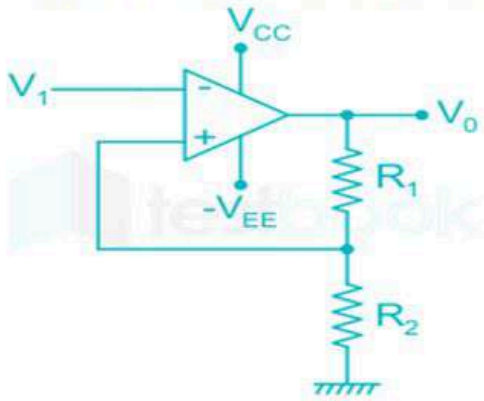
13	**5261**	The Q' (complement of Q) of last FF of 4 stage shift register is connected to input of the first FF, then the logic circuit acts as **a.** Modulo 4 counter **b.** Modulo 10 counter **c.** Modulo 16 counter **d.** Modulo 8 counter	
14	**5250**	Transformer utilisation factor of a half wave rectifier is __ **a.** 0.234 **b.** 0.279 **c.** 0.287 **d.** 0.453	
15	**5338**	The most important disadvantage of CDMA over TDMA is that **a.** There should be no precise time co-ordination among various simultaneous transmitters **b.** Message delay is lower **c.** CDMA needs lower bandwidth than TDMA **d.** Hardware requirement is lower than in TDMA	
16	**5274**	Crystal oscillator is used because **a.** it gives high output voltage **b.** the frequency of oscillation is constant **c.** it works well at high frequency **d.** It requires low d.c. supply voltage	
17	**5321**	Slew rate is defined as **a.** Rate of change of output voltage per unit time **b.** Maximum voltage output **c.** Minimum input signal **d.** Bandwidth of the amplifier	
18	**5265**	What is the simplified expression for z= AB'C' + AB'C + ABC is **a.** A (B' + C) **b.** A' (B + C) **c.** A C' **d.** A (B + C)	
19	**5248**	The relation between α and β is **a.** $\beta = \alpha/(1-\alpha)$ **b.** $\alpha = \beta/(1+\beta)$ **c.** $\beta = \alpha/(1+\alpha)$ **d.** $\alpha = \beta/(1-\beta)$	
20	**5278**	The maximum theoretical efficiency of a Class A amplifier can be **a.** 50% **b.** 78% **c.** 25% **d.** None of above	

21	**5318**	In an op-amp integrator circuit, the output voltage is proportional to the____ **a.** cube of the input signal **b.** sum of the input signal **c.** integral of the input signal **d.** derivative of the input signal	
22	**5270**	Darlington pair consists of the following two stages **a.** both CE **b.** CE and CB **c.** CE and CC **d.** both CC	
23	**5324**	What is the function of the 555 Timer in monostable mode? **a.** Generates a continuous square wave **b.** Generates a single pulse when triggered **c.** Works as an amplifier **d.** Works as a voltage regulator	
24	**5340**	A comparison of FDM and TDM system show that **a.** FDM requires a lower bandwidth but TDM has great Noise immunity **b.** FDM has great noise immunity and requires lower BW than TDM **c.** FDM requires channel synchronization, While TDM has greater noise immunity **d.** FDM requires more multiplexing while TDM requires band pass filter	
25	**5334**	Which one is more efficient in terms of BW **a.** QAM **b.** FSK **c.** BPSK **d.** M-ARY PSK	
26	**5246**	For a fixed bias circuit having R_C=4.7KΩ and R_B=1KΩ, V_{CC}=10V, and base current at Bias point was found to be 0.2μA, Find β? **a.** 100 **b.** 106 **c.** 125 **d.** 0	
27	**5301**	Voltmeter has a loading effect in a particular circuit. This leads to **a.** Static error **b.** Dynamic error **c.** Gross error **d.** Random error	
28	**5320**	For an ideal OP-AMP, which of the following is correct? **a.** Zero input impedance and infinite output impedance **b.** Infinite input impedance and infinite output impedance **c.** Infinite input impedance and zero output impedance **d.** Zero input impedance and zero output impedance	

29	**5245**	Which of the following equation represents mass action law for semiconductors in electronic circuits **a.** $n \times p = n_i^2$ **b.** $n \times p = n_i$ **c.** $n \times p = n_i^3$ **d.** $n \times p = n_i^{1/2}$	
30	**5327**	Which of the following pulse modulation system is Analog **a.** PCM **b.** Differential PCM **c.** PWM **d.** Delta	
31	**5249**	To use FET as a voltage-controlled resistor, in which region it should operate? **a.** Ohmic region **b.** cut off **c.** Saturation **d.** cut off and saturation	
32	**5281**	The working of SMPS is based on: **a.** Integral control principle **b.** Frequency control principle **c.** Chopper principle **d.** Phase control principle	
33	**5263**	Minimum of NAND Gates required to implement the following Boolean function is $F(x, y, z) = \Sigma m(2, 3, 4, 5)$ **a.** 5 **b.** 4 **c.** 6 **d.** 7	
34	**5331**	The frequency is shifted between two levels in which of following **a.** ASK **b.** FSK **c.** PSK **d.** QAM	
35	**5275**	The change in output voltage for the corresponding change in load current in a 7805 IC regulator is defined as **a.** All of the mentioned **b.** Line regulation **c.** Load regulation **d.** Input regulation	
36	**5325**	In the circuit of an Op-Amp as an integrator, the feedback circuit mainly contains a **a.** Resistor **b.** Capacitor **c.** Diode **d.** Transistor	

37	**5287**	Which of the following schemes suffer(s) from the threshold effect? **a.** AM detection using envelope detection **b.** AM detection using synchronous detection **c.** FM detection using discriminator **d.** SSB detection using synchronous detection	
38	**5317**	The circuit shown in the figure can be used as a  **a.** full wave rectifier **b.** voltage to frequency converter **c.** logarithmic amplifier **d.** frequency to voltage converter	
39	**5272**	The gain of a transistor amplifier falls at high frequency due to the **a.** coupling capacitor at the output **b.** skin effect **c.** internal capacitances of device **d.** coupling capacitor at the input	
40	**5268**	One of the conditions of oscillation is **a.** Phase shift is 90 degrees **b.** Phase shift is 180 degrees **c.** Phase shift is 0 degrees **d.** Phase shift is 45 degrees	
41	**5276**	Which of the following component gives smooth DC output? **a.** Clamper **b.** Regulator **c.** Clipper **d.** Rectifier	

42	**5302**	which of the following instrument is based on 'See back effect' **a.** PMMC **b.** Potentiometer **c.** Electro dynamometer **d.** Thermo couple instrument	
43	**5252**	In the saturated region, the transistor acts like a_____ **a.** poor transistor **b.** amplifier **c.** open switch **d.** closed switch	
44	**5253**	The number of full and half-adders required to add 32-bit numbers is **a.** 16 half-adders, 16 full-adders **b.** 1 half-adder, 31 full-adders **c.** 32 half-adders, 0 full-adders **d.** 8 half-adders, 24 full-adders	
45	**5255**	58. The input frequency for the FF given is 1 KHz, then what will be output frequency  **a.** 50 Hz **b.** 1 kHz **c.** 0 Hz **d.** 2 KHz	
46	**5266**	Which of the following counter is also called as asynchronous counter? **a.** Decimal counter **b.** Ripple counter **c.** BCD counter **d.** LSI counter	
47	**5335**	To demodulate PAM, the following circuit is used **a.** High pass filter **b.** Low pass filter **c.** LC circuit **d.** OP-Amp	
48	**5339**	In a communication system, noise is most likely to affect the signal **a.** In the transmitter **b.** In the channel **c.** In the formation source **d.** At the destination	

49	**5288**	Flat top sampling of low pass signals **a.** Gives rise to aperture effect **b.** Implies oversampling **c.** Leads to aliasing **d.** Introducing delay distortion	
50	**5311**	A thermocouple is A_____ type transducer **a.** variable resistance **b.** variable generating **c.** variable inductance **d.** variable divider	
51	**5315**	The maximum rate of change of the output voltage in response to step input voltage is known as _____ of an op-amp. **a.** CMRR **b.** Offset voltage **c.** Slew rate **d.** Voltage gain	
52	**5310**	The LVDT usually has two secondaries connected in **a.** series addition **b.** series opposition **c.** parallel opposition **d.** parallel addition	
53	**5342**	In Zener Diode, Increasing Doping Level leads **a.** to increase the Zener Potential **b.** to decrease the Zener Potential **c.** Zener Potential remains constant **d.** Zener Potential Independent of doping	
54	**5319**	What does the following diagram represent?  **a.** Bistablemultivibrator **b.** Astable vibrator **c.** Monostable vibrator **d.** Schmitt trigger	

55	**5294**	Which of the following is same in AM and FM receivers **a.** Demodulator **b.** AGC **c.** IF amplifier **d.** All of the above	
56	**5280**	The cross-over distortion behaviour characteristic of: **a.** class-A output stage **b.** common base output stage **c.** class AB output stage **d.** class B output stage	
57	**5314**	A stable multivibrator has **a.** A stable multivibrator has **b.** one stable state **c.** two stable state **d.** two quasi-stable states	
58	**5312**	An ideal Op-Amp slew rate is **a.** very slow **b.** slow **c.** fast **d.** infinitely fast	
59	**5308**	A linear variable differential transformer (LVDT) has___ **a.** Two primary windings **b.** Movable magnetic core **c.** 3 secondary windings **d.** zero output voltage	
60	**5242**	FET is a **a.** Current controlled device **b.** Voltage controlled device **c.** Both current and voltage controlled device **d.** Normal device	

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Answer Key

Post: Lab Technician (Electronics & Communication Engineering)
Date of Exam: 17.5.25 Exam Time :2:00PM – 3.00PM Exam Slot :A2

Post: Lab Technician (Electronics & Communication Engineering)

Question No	ID No.	Option
1	5292	D
2	5285	B
3	5298	B
4	5343	A
5	5283	B
6	5337	A
7	5264	A
8	5300	C
9	5257	A
10	5279	C
11	5271	B
12	5290	C
13	5261	B
14	5250	C
15	5338	A
16	5274	B
17	5321	A
18	5265	A
19	5248	B
20	5278	A
21	5318	C
22	5270	D
23	5324	B
24	5340	C
25	5334	A
26	5246	B
27	5301	C
28	5320	C
29	5245	A
30	5327	C
31	5249	A
32	5281	C
33	5263	D
34	5331	B
35	5275	C
36	5325	B
37	5287	C
38	5317	C
39	5272	C
40	5268	A
41	5276	B
42	5302	D

43	5252	D
44	5253	A
45	5255	C
46	5266	B
47	5335	B
48	5339	B
49	5288	A
50	5311	C
51	5315	D
52	5310	B
53	5342	B
54	5319	D
55	5294	C
56	5280	D
57	5314	C
58	5312	D
59	5308	B
60	5242	D