PRN No.	Total No. of Questions: 10

JSPM's

Rajarshi Shahu College of Engineering, Tathawade, Pune- 411033

(An autonomous institute affiliated to Savitribai Phule Pune University)

Examination: End Semester (ESE)

Semester: II Academic Year: 2024-25

Programme: -Civil/E&TC/IT

Examination Class: F. Y. B. Tech.

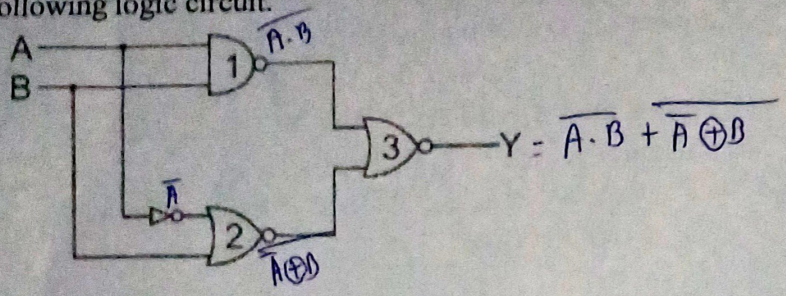
Course Code: --EC1201T Course Name and Pattern: --Basic Electronics Engineering

Duration: 2 Hour Max. Marks: 50 Marks

Instructions to the Candidates
1. Solve sections A, B, C.
2 Assume suitable and necessary data wherever required.
3. Use of log table, scientific calculators is allowed.

Section A

Q. No.	Question	Bloom's Level	Marks	COs
Q.1	**Solve Any Two**			
a	Which of the following is true for a bridge rectifier? i)PIV of bridge rectifier is lower as compared to an identical center tap full wave rectifier ii)The output f voltage for the center tapped rectifier is lower than the bridge rectifier iii)TUF of bridge rectifier is greater than center tap full wave rectifier iv)All the mentioned above	BL1	2	CO1
b	Draw the input and output characteristics of common Emitter configuration.	BL1	2	CO1
c	In IC 555 as an Astable multivibrator if RA=26K,RB=52K,C=1nF .Calculate its output Frequency.	BL1	2	CO1
Q.2	**Solve Any Two**			
a	Draw a switching diagram for AND gate and write a truth table.	BL1	2	CO1
b	Convert (125)10 into binary.	BL1	2	CO1
c	What are canonical SOP and POS forms of Boolean expression?	BL1	2	CO1
Q.3	**Solve any Two**			
a	Draw block diagram of basic instrumentation system.	BL1	2	CO1
b	Which of the following is not a characteristic of an ideal transducer? i)High dynamic range ii)Low linearity iii)High Accuracy iv)Low noise	BL1	2	CO1
c	Compare Active and passive transducer(Any two points)	BL1	2	CO1

Q.4	**Solve Any Two**			
a	List the advantages of Fiber optic cable over coaxial cable.	BL1	2	CO1
b	Draw block diagram of Global positioning system.	BL1	2	CO1
c	Why modulation is required in communication?	BL1	2	CO1
	Section B			
Q.5	**Solve Any Two**			
a	Identify the Gates and find the boolean expression for the following logic circuit. 	BL2	4	CO2
b	Find 1's and 2's complement of (115)10	BL2	4	CO2
c	Show how a NAND Gate is used to realise i)NOT ii)AND gate.	BL2	4	CO2
Q.6	**Solve Any One**			
a	Discuss the construction and working of RTD in Detail .	BL2	4	CO2
b	Elaborate the working of soil moisture sensor.	BL2	4	CO2
Q.7	**Solve Any One**			
a	Explain the working of GSM with suitable diagram.	BL2	4	CO2
b	Elaborate the effect of modulation index on AM by sketching waveforms for i)m=1 ii)m<1 iii)m>1.	BL2	4	CO2
	Section C			
Q.8	**Solve Any One**			
a	Which gate is used in the staircase? Implement it using NAND.	BL3	6	CO3
b	Simplify the expression using K-map. $Y=\sum m(0,1,2,3,6)$	BL3	6	CO3
Q.9	**Solve Any One**			
a	Which sensor is used in a security system? Elaborate it with a neat sketch.	BL3	6	CO3
b	Elaborate the construction and working of Inductive Transducer with advantages and disadvantages.	BL3	6	CO3
Q.10	**Solve any One**			
a	A carrier of 20V peak and frequency of 10MHz is amplitude modulated by a sine wave of 3.5V peak and frequency 2 KHZ. Determine modulation index and draw frequency spectrum.	BL3	6	CO3
b	Derive Mathematical expression of Amplitude modulation and draw frequency spectrum.	BL3	6	CO3

Bloom's Level:

BL1- Remembering BL2- Understanding BL3- Apply

----------All The Best----------