

ANSWER KEY

SECOND YEAR HIGHER SECONDARY EXAMINATION MARCH 2022

PART-III/III

SUBJECT: ELECTRONIC SERVICE TECHNOLOGY

CODE NO: ~~5754~~ 5754

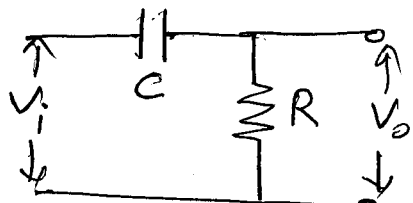
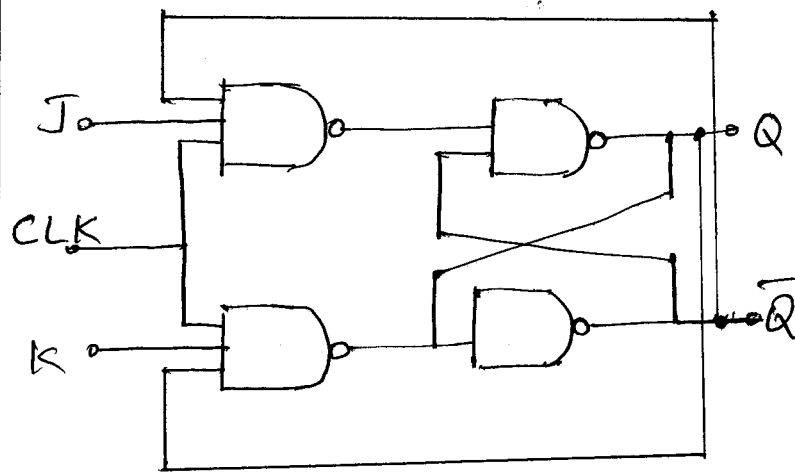
VERSION: (B)

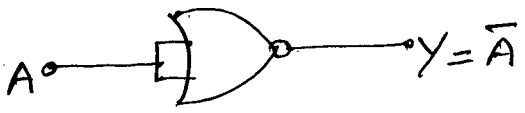
60 SCORES

2 HOURS

| Qn. No         | Sub Qns | Answer Key/Value Points   | Score | Total Score |
|----------------|---------|---|-------|-------------|
| <u>PART I</u>  |         |   |       |             |
| A.             |         |   |       |             |
| 1.             |         | AND   | 1     |             |
| 2.             |         | 10000   | 1     |             |
| 3.             |         | High pass   | 1     |             |
| 4.             |         | 1   | 1     |             |
| 5.             |         | electrical or video   | 1     |             |
| 6.             |         | Photodiode  | 1     | 9           |
| 7.             |         | +5  | 1     |             |
| 8.             |         | dc into ac  | 1     |             |
| 9.             |         | Hissing   | 1     |             |
| B.             |         |   |       |             |
| 10.            |         | diode   | 1     |             |
| 11.            |         | 1   | 1     |             |
| 12.            |         | Interlaced scanning   | 1     | 4           |
| 13.            |         | LM317   | 1     |             |
| <u>PART II</u> |         |   |       |             |
| A.             |         |   |       |             |
| 14.            |         | The property of the eye, producing a response which depends on the algebraic sum of Red, Green and Blue inputs. | 2     |             |

| Qn. No          | Sub Qns | Answer Key/Value Points  | Score     | Total Score |
|-----------------|---------|--|-----------|-------------|
| 15.             |         | Booster is an RF amplifier to strengthen the weak signals, helps to increase coverage in fringe areas. | 1+1<br>=2 | 8           |
| 16.             |         | block diagram  | 2         |             |
| 17.             |         | block diagram  | 2         |             |
| B               |         |  |           |             |
| 18.             |         | $\overline{A \cdot B} = \bar{A} + \bar{B}$ $\overline{A+B} = \bar{A} \cdot \bar{B}$                    | 1+1<br>=2 | 6           |
| 19.             |         | layered structure  | 2         |             |
| 20.             |         | block diagram  | 2         |             |
| A               |         |  |           |             |
| <u>Part III</u> |         |  |           |             |
| 21.             | a)      | clammer  | 1         | 12          |
|                 | b)      |  | 2         |             |
| 22.             |         | circuit diagram (2)<br>working (1)   | 2+1<br>=3 |             |
| 23.             |         | block diagram.   | 3         |             |
| 24.             |         | constructional diagram (2)<br>explanation (1)  | 2+1<br>=3 |             |
| B               |         |  |           |             |
| 25.             |         | logic diagram (2)<br>truth table (1)   | 2+1<br>=3 |             |

| Qn. No | Sub Qns             | Answer Key/Value Points  | Score   | Total Score |
|--------|---------------------|--|---|-------------|
| 26     |                     |  <p style="text-align: right;">(2)</p> <p>cut off frequency, <math>f_c = \frac{1}{2\pi RC}</math> (1)</p>   | <p>2+1<br/>=3</p>   | 9           |
| 27     |                     | <p>block diagram</p>   | 3   |             |
| A      |                     | <p><u>Part IV</u></p>  |   |             |
| 28     | <p>a)</p> <p>b)</p> | <p><math>\infty</math></p> <p>circuit diagram (2)</p> <p><math>A_{CL} = 1 + \frac{R_f}{R_i}</math> (1)</p>   | <p>1</p> <p>2+1<br/>=3</p>                                    |             |
| 29     | <p>a)</p> <p>b)</p> |  <p>When <math>J=K=1</math>, the o/ps jump from 0 to 1 or 1 to 0 multiple times as long as the clock is high which makes the o/p unstable.</p> | <p>3</p> <p>1</p>   |             |
| 30     | <p>a)</p> <p>b)</p> | <p>FM, AM</p> <p>block diagram</p>   | <p><math>\frac{1}{2} + \frac{1}{2}</math><br/>=1</p> <p>3</p> |             |

| Qn. No   | Sub Qns        | Answer Key/Value Points  | Score            | Total Score |
|----------|----------------|--|------------------|-------------|
| 31.      | a)<br>b)       | any one use<br>block diagram   | 1<br>3           | 16          |
| <u>B</u> |                |  | 4                |             |
| 32.      |                | diagram  |                  |             |
| 33.      |                | tape transport mechanism-figure<br>working (3)<br>(1)  | 3+1<br>=4        | 8           |
| <u>A</u> |                | <u>Part V</u>  |                  |             |
| 34.      | a)<br>b)<br>c) | OR, AND, NOT<br>symbols (1½), truth tables (½)<br>IC 7402 - NOR gate IC. (1)                           | 1<br>3<br>2      |             |
|          |                |                     |                  |             |
| 35.      | a)<br>b)<br>c) | circuit diagram<br>triangular wave<br>circuit diagram (2)<br>$V_o = \frac{1}{RC} \int V_{in} dt$ . (1) | 2<br>1<br>3      |             |
| 36.      | a)<br>b)<br>c) | any two advantages<br>structure<br>explanation of total internal reflection.                           | 2<br>2<br>2      | 18          |
|          |                |  | <u>Total: 90</u> |             |