

(6 pages)

Reg. No. :

Code No. : 8766

Sub. Code : KPHM 13

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2016.

First Semester

Physics

INTEGRATED ELECTRONICS

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. How will electrons flow through a p-channel JFET?
 - (a) From source to gate
 - (b) From drain to gate
 - (c) From source to drain
 - (d) From drain to source

2. How many terminals a MOSFET has?

- (a) 1
- (b) 2
- (c) 3
- (d) 3 or 4

3. How is a J-K flip-flop made to toggle?

- (a) $J=0, K=0$
- (b) $J=0, K=1$
- (c) $J=1, K=0$
- (d) $J=1, K=1$

4. Which of the following logic families has the highest noise margin?

- (a) TTL
- (b) LSTTL
- (c) CMOS
- (d) ACMOS

5. The common mode gain of an OP-AMP is _____.

- (a) Very high
- (b) Very low
- (c) Always unity
- (d) Unpredictable

6. An analog multiplexing technique that combines analog signals is called _____.

- (a) FDM
- (b) TDM
- (c) WDM
- (d) COMA

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7. Astable multivibrator is also known as _____.

- (a) Free running multivibrator
- (b) External triggering multivibrator
- (c) TTL triggering multivibrator
- (d) None of these

8. The digital information is transmitted through discrete frequency changes of a carrier signal is called _____.

- (a) SSK modulation (b) PLL modulation
- (c) FSK modulation (d) Demodulation

9. Self generating type transducers are _____ transducers.

- (a) Active (b) Inverse
- (c) Secondary (d) Passive

10. Shielding is used to _____.

- (a) Reduce noise current
- (b) Increase noise current
- (c) Reduce output gain
- (d) Reduce output power.

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SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Draw the V-I characteristics of SCR. What do you infer from them?

Or

(b) Write short note on 'IC'.

12. (a) Describe the function of 'OR' gate.

Or

(b) Clarify the working of D-flip flop.

13. (a) Mention any three parameters of an operational amplifier.

Or

(b) What is low pass filter? Explain its working.

14. (a) Explain the internal structure of 555 - Timer.

Or

(b) Sketch the pin diagram of PLL IC 565 and explain its function.

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[P.T.O.]



15. (a) Distinguish between sensors and transducer.

Or

- (b) Define the following :

- (i) Signal condition
- (ii) Signal recover.

SECTION C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the construction, working and V-I characteristics of DIAC.

Or

- (b) Describe the output characteristics of JFET.

17. (a) Give the working of J-K master slave flip flop.

Or

- (b) Describe the construction and working of PMOS.

18. (a) Illustrate the function of an astable multivibrator using IC 555 – Timer.

Or

- (b) Construct voltage control oscillator using IC 566 and describe its function.

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19. (a) What is high band-pass filter? Explain its working with necessary graphical representation.

Or

- (b) Describe the various types of analog multiplexer.

20. (a) Explain the positive and negative feedback amplification of operational amplifier.

Or

- (b) Derive an expression for box car integrator.
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