

رقم القيد:

إسم الطالب:

Group: Computer**Midterm****Date:** 15 / 01 / 2019

Important Notes:

- This paper contains **THREE** questions in **THREE** pages. - Attempt **ALL** questions.
 - Total time allowed **ONE HOUR.** - Total Marks: **30**
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Q.1 [12 Marks] For ATmega328 explain the following in detail:

- a) Generating PWM signals using timers.
- b) How successive approximation ADC works?
- c) Assuming the ADC resolution is 4-bits, show the steps of converting 3V input into digital number, if reference voltage is 5V.

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Q.2 [6 Marks] Briefly explain the difference between the following:

- a) Resolution and Accuracy of ADC.
- b) Synchronous versus asynchronous serial data transfer.

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Q.3 [12 Marks]

a) Explain how to configure ATmega328 serial port as following:

- 5 data bits.
- 1 stop bit.
- No parity.

b) Write assembly instruction(s) to setup the port to transfer data at a rate of 9600 bps.

End of questions
Good luck!