DURATION: - 2½ hrs   74205424   **MARKS:- 75**

Note: - (1) All questions are compulsory.
 (2) Figures to the right indicate full marks
 (3) Answer to each question must being on a new page

Q.1)	**Attempt any 3 out of 6**	**15M**
a)	Explain PIC microcontroller and its categories	CO1-R
b)	Describe the basics of PIC microcontroller	CO1-R
c)	Explain memory organization of PIC Microcontroller	CO2-R
d)	Explain ARM architecture with neat labelled diagram	CO1-U
e)	Write down the memory organisation in ARM	CO1-R
f)	Explain the different types of addressing mode in ARM	CO1-U
Q.2)	**Attempt any 3 out of 6**	**15M**
a)	Explain communication protocols	CO2-R
b)	Explain integrating with micro controller using bit banking method	CO2-U
c)	Write short note on I2C devices	CO2-R
d)	Explain serial Peripheral interface	CO2-R
e)	What is Bluetooth?	CO2-R
f)	Explain Wi-Fi and RFID	CO2-R
Q.3)	**Attempt any 3 out of 6**	**15M**
a)	List out different qualities and characteristics of arduino as compared to other platforms	CO3-U
b)	Enlist the Arduino variants and explain any five	CO3-R
c)	Explain the interface arduino software	CO3-U
d)	List out and explain various basic functions used in arduino programming language	CO3-U
e)	Describe the variables and constants used in Arduino programming language	CO3-U
f)	Explain the structure function used in ardunio programming language	
Q.4)	**Attempt any 3 out of 6**	**15M**
a)	Explain light sensitive sensors and temperature sensors	CO4-R
b)	Explain temperature and humidity sensor	CO4-R
c)	Explain line tracking sensor	CO4-R
d)	Explain ultrasonic sensor with its technical specifications	CO4-R
e)	Explain digital infrared motion sensors	CO4-U
f)	What is joystick module	CO4-R
Q.5)	**Attempt any 3 out of 6**	**15M**
a)	What is IR sensor? Explain working principle of IR sensors	CO5-R
b)	What are the advantages and disadvantages of IR sensor module	CO5-R
c)	Write a short note on architecture of Bluetooth	CO5-U
d)	Explain data conversion in PIC	CO1-R
e)	Explain Wi-Fi and its types	CO5-R
f)	Describe the Bluetooth frame format with diagram	CO5-R

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