CMR TECHNICAL CAMPUS
UGC AUTONOMOUS
B.Tech. I Semester, Question Bank
Department of H&S

Subject: Basic Elements of Engineering and Technology

Academic Year:-2024-25   **Semester:-I**
Subject Code: 22CS209ES
Common to CSM-D, CSD-B&C, ECE

MID-1 Exam Questions
Part-A

Q.No.	Question	Marks	BL	CO	Unit No.
1	Define Internet of things.	2M	L1	CO1	I
2	Describe the evolution of IOT briefly.	2M	L1	CO1	I
3	Define an embedded system and give two examples.	2M	L2	CO1	I
4	Describe the architecture of a micro controller with a neat diagram.	2M	L1	CO	I
5	Briefly describe the history of IoT.	2M	L1	CO1	I
6	List out the applications of IoT.	2M	L1	CO1	I
7	Write short notes on security and privacy issues in IOT.	2M	L1	CO1	I
8	Discuss the mitigation strategies for the security and privacy issues in IoT.	2M	L1	CO1	I
9	Write short notes on Raspberry pi .	2M	L1	CO1	I
10	Compare Arduino uno and raspberry pi.	2M	L4	CO1	I
11	List out the various operating systems supported by Raspberry pi.	2M	L1	CO1	I
12	Write the basic functions supported by Arduino Ide.	2M	L1	CO1	I
13	Define a robot and write the main functionality of robots.	2M	L1	CO2	II
14	Discuss the laws of robotics.	2M	L1	CO2	II
15	Classify the robots into various categories.	2M	L2	CO2	II
16	Briefly discuss about robotic swarms.	2M	L3	CO2	II
17	Briefly discuss about Robot ethics and security.	2M	L3	CO2	II
18	Write short notes on proximity sensor.	2M	L3	CO2	II
19	Discuss the history and evolution of robots.	2M	L3	CO2	II
20	Write short notes on bio inspired and bio hybrid robots.	2M	L3	CO2	II
21	List out 4 disadvantages of using robots.	2M	L3	CO2	II
22	Write short notes on brain computer interface with regard to robotics.	2M	L3	CO2	II
23	Discuss the history of robotics.	2M	L1	CO2	II
24	Discuss the difference between a machine and a robot.	2M	L4	CO2	II

25	How can IoT benefit the entertainment industry?	2M	L3	CO3	V
26	Discuss the advantages of IoT in Fleet management.	2M	L3	CO3	V
27	List out the challenges of IoT in logistics.	2M	L3	CO3	V
28	How can IoT transform the entertainment industry?	2M	L3	CO3	V
29	Interpret the challenges of robotics in manufacturing industries.	2M	L3	CO3	V
30	Write short notes on service robots in health care.	2M	L3	CO3	V

PART-B

Q.No.	Question	Marks	BL	CO	Unit No.
1	Draw the pin out of Arduino Uno and describe the pins.	4M	L1	CO1	I
2	Describe the process of installing Arduino IDE and sending the led blinking code to Arduino board.	4M	L1	CO1	I
3	Implement the code for inbuilt led blinking.	4M	L3	CO1	I
4	Explain the societal benefits and impact on economy of IoT.	4M	L2	CO1	I
5	Describe the architecture of IOT with a neat diagram.	4M	L2	CO1	I
6	Describe the features of Raspberry pi OS.	4M	L2	CO1	I
7	List out components of an embedded system explain them in detail .	8M	L1	CO1	I
8	Design an automatic door opening circuit using Arduino and IR sensor,write the code and describe its working.	8M	L6	CO1	I
9	Describe the process of installing OS to Raspberry pi along with the pre-requistes and system configuration wizard.	8M	L2	CO1	I
10	Discuss the Applications of robots in the field of agriculture,manufacturing industries.	4M	L2	CO1	II
11	Explain the various sensors and actuators used in Robots in detail.	4M	L2	CO1	II
12	Discuss the Applications of robots in the field of military and warehouses.	4M	L1	CO3	II
13	Summarize the innovations and scope of robotics in new materials,exploration and navigation,power and energy,AI for robotics.	4M	L1	CO3	II
14	Summarize the challenges of robotics in ,exploration and navigation,power and energy,AI for robotics.	4M	L1	CO3	II
15	Discuss the advantages and limitations of robots.	4M	L1	CO3	II
16	Explain the components of a robot in detail.	8M	L1	CO3	II
17	Summarize the challenges, innovations and scope of robotics in medical robotics and micro bots.	8M	L1	CO3	II
18	Interpret assembling and testing of a Robot .	8M	L2	CO3	II
19	Discuss applications of IoT in logistics.	4M	L2	CO3	V
20	Discuss the role of IoT in Retail.	4M	L2	CO3	V
21	Discuss the role of IoT in Health care industry.	4M	L2	CO3	V
22	Describe the Role of Robots in the Automotive Industry.	4M	L1	CO3	V
23	Write short notes on surgical assistance robots in healthcare.	4M	L1	CO3	V

MID-2 Questions

PART -A

Q.	Question	Marks	BL	CO	Unit no
1	Explain Reverse Engineering.	2M	L1	CO3	III
2	List out the applications of 3d printing.	2 M	L1	CO3	III
3	Name few 3d printing Technologies.	2 M	L1	CO3	III
4	What is STL file?	2 M	L1	CO3	III
5	Define 3D Printing.	2 M	L1	CO3	III
6	Enlist steps for 3D Printing.	2 M	L1	CO3	III
7	What are steps involved in product design & development?	2 M	L1	CO3	III
8	What are the components of 3d printers?	2 M	L1	CO3	III
9	Define additive manufacturing.	2 M	L1	CO3	III
10	Enlist the material used in FDM Process.	2 M	L1	CO3	III
11	Enlist the material used in SLA Process.	2 M	L1	CO3	III
12	Enlist the material used in SLS Process.	2 M	L1	CO3	III
13	Name few slicing software's for g code .generation.	2 M	L1	CO4	IV
14	What are the design software's used in 3d printing?	2 M	L2	CO4	IV
15	What are the infill patterns used in 3d printing?	2 M	L1	CO4	IV
16	What are 3d printing parameters?	2 M	L1	CO4	IV
17	What is acetone bathing?	2 M	L1	CO4	IV
18	Explain how support structure is removed.	2 M	L1	CO4	IV
19	List out the post processing techniques used in 3d printing.	2 M	L1	CO4	IV
20	Why post processing is needed used in 3d printing?	2 M	L1	CO4	IV
21	How print speeds effect the quality of 3d printing?	2 M	L1	CO4	IV
22	What is in-fill density?	2 M	L1	CO4	IV
23	What is the purpose of post curing?	2 M	L1	CO4	IV
24	What is the us of G-codes	2 M	L1	CO4	IV
25	Explain how 3d printing useful for automobile industry.	2 M	L1	CO5	V
26	Explain how 3d printing useful for Health care.	2M	L1	CO5	V
27	Explain how 3d printing useful for Logistics.	2 M	L1	CO5	V
28	Explain how 3d printing useful for Manufacturing industry.	2 M	L1	CO5	V
29	Enlist advantages of 3D printing.	2M	L1	CO5	V
30	Explain how 3d printing useful for aerospace industry.	2M	L1	CO5	V

PART-B

Q. No	Question	Marks	BL	CO	Unit no
1	Describe the steps involved in 3d printing in detail.	4 M	L1	C03	III
2	What are the materials used for 3d printing technologies?	4 M	L1	C03	III
3	Explain the components of a 3D printer.	4 M	L1	C03	III
4	Differentiate between additive manufacturing and subtractive manufacturing.	4 M	L1	C03	III
5	What are disadvantages of additive manufacturing?	4 M	L1	C03	III
6	Explain each step involved in product design &development with example.	4 M	L1	C03	III
7	Explain the FDM-Fused Deposition Modeling process with neat sketch.	8 M	L1	C03	III
8	Explain the SLA-Stereo lithography process with neat sketch.	8 M	L1	C03	III
9	Explain the SLS-Selective Laser Sintering process with neat sketch.	8 M	L1	C03	III
1	What are the benefits and limitations of CAD software?	4 M	L1	C04	IV
2	What are the functions of slicing software in 3D printing?	4 M	L3	C04	IV
3	What are the post processing Techniques used in 3D printing?	4 M	L2	C04	IV
4	What are the features of CAD software?	4 M	L1	C04	IV
5	What are parameters affecting the 3D Printing Process? Explain briefly?	4 M	L2	C04	IV
6	Explain the sanding & painting in Post processing.	4 M	L1	C04	IV
7	Explain in detail a software used in slicing of 3D printing object.	8 M	L2	C04	IV
8	Explain post processing Techniques used in 3D printing in detail.	8 M	L2	C04	IV
9	Explain the need for support structure removal and the techniques involved in it.	8 M	L1	C04	IV
1	Write a case study on applications of 3D printing in automobile sector.	4 M	L1	C05	V
2	Write a case study on application of 3D printing in healthcare products.	4 M	L2	C05	V
3	What is the scope of 3d printing in manufacturing industry?	4 M	L2	C05	V

4	Write a case study on application of 3D printing in aerospace industry.	4 M	L2	C05	V
5	Write a case study on application of 3D printing in construction industry.	4 M	L1	C05	V

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26	Explain how 3d printing useful for Health care.	2M	L1	CO5	V
27	Explain how 3d printing useful for Logistics.	2 M	L1	CO5	V
28	Explain how 3d printing useful for Manufacturing industry.	2 M	L1	CO5	V
29	Enlist advantages of 3D printing.	2M	L1	CO5	V

Q. No	Question	Marks	BL	CO	Unit no
30	Explain how 3d printing useful for aerospace industry.	2M	L1	CO5	V

PART-B

Q. No	Question	Marks	BL	CO	Unit no
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2	What are the materials used for 3d printing technologies?	4 M	L1	C03	III
3	Explain the components of a 3D printer.	4 M	L1	C03	III
4	Differentiate between additive manufacturing and subtractive manufacturing.	4 M	L1	C03	III
5	What are disadvantages of additive manufacturing?	4 M	L1	C03	III
6	Explain each step involved in product design &development with example.	4 M	L1	C03	III
7	Explain the FDM-Fused Deposition Modeling process with neat sketch.	8 M	L1	C03	III
8	Explain the SLA-Stereo lithography process with neat sketch.	8 M	L1	C03	III
9	Explain the SLS-Selective Laser Sintering process with neat sketch.	8 M	L1	C03	III
1	What are the benefits and limitations of CAD software?	4 M	L1	C04	IV
2	What are the functions of slicing software in 3D printing?	4 M	L3	C04	IV
3	What are the post processing Techniques used in 3D printing?	4 M	L2	C04	IV
4	What are the features of CAD software?	4 M	L1	C04	IV
5	What are parameters affecting the 3D Printing Process? Explain briefly?	4 M	L2	C04	IV
6	Explain the sanding & painting in Post processing.	4 M	L1	C04	IV
7	Explain in detail a software used in slicing of 3D printing object.	8 M	L2	C04	IV
8	Explain post processing Techniques used in 3D printing in detail.	8 M	L2	C04	IV
9	Explain the need for support structure removal and the techniques involved in it.	8 M	L1	C04	IV
1	Write a case study on applications of 3D printing in automobile sector.	4 M	L1	C05	V
2	Write a case study on application of 3D printing in healthcare products.	4 M	L2	C05	V
3	What is the scope of 3d printing in manufacturing industry?	4 M	L2	C05	V
4	Write a case study on application of 3D printing in aerospace industry.	4 M	L2	C05	V

5	Write a case study on application of 3D printing in construction industry.	4 M	L1	C05	V

MID-2 Questions

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3	Define an embedded system and give two examples.	2M	L2	CO1	I
4	Describe the architecture of a micro controller with a neat diagram.	2M	L1	CO	I
5	Briefly describe the history of IoT.	2M	L1	CO1	I
6	List out the applications of IoT.	2M	L1	CO1	I
7	Write short notes on security and privacy issues in IOT.	2M	L1	CO1	I
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9	Write short notes on Raspberry pi .	2M	L1	CO1	I
10	Compare Arduino uno and raspberry pi.	2M	L4	CO1	I
11	List out the various operating systems supported by Raspberry pi.	2M	L1	CO1	I
12	Write the basic functions supported by Arduino Ide.	2M	L1	CO1	I
13	Define a robot and write the main functionality of robots.	2M	L1	CO2	II
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15	Classify the robots into various categories.	2M	L2	CO2	II
16	Briefly discuss about robotic swarms.	2M	L3	CO2	II
17	Briefly discuss about Robot ethics and security.	2M	L3	CO2	II
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23	Discuss the history of robotics.	2M	L1	CO2	II
24	Discuss the difference between a machine and a robot.	2M	L4	CO2	II
25	How can IoT benefit the entertainment industry?	2M	L3	CO3	V
26	Discuss the advantages of IoT in Fleet management.	2M	L3	CO3	V
27	List out the challenges of IoT in logistics.	2M	L3	CO3	V
28	How can IoT transform the entertainment industry?	2M	L3	CO3	V
29	Interpret the challenges of robotics in manufacturing industries.	2M	L3	CO3	V
30	Write short notes on service robots in health care.	2M	L3	CO3	V

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Q.No.	Question	Marks	BL	CO	Unit No.
1	Draw the pin out of Arduino Uno and describe the pins.	4M	L1	CO1	I

2	Describe the process of installing Arduino IDE and sending the led blinking code to Arduino board.	4M	L1	CO1	I
3	Implement the code for inbuilt led blinking.	4M	L3	CO1	I
4	Explain the societal benefits and impact on economy of IoT.	4M	L2	CO1	I
5	Describe the architecture of IOT with a neat diagram.	4M	L2	CO1	I
6	Describe the features of Raspberry pi OS.	4M	L2	CO1	I
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8	Design an automatic door opening circuit using Arduino and IR sensor,write the code and describe its working.	8M	L6	CO1	I
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21	Discuss the role of IoT in Health care industry.	4M	L2	CO3	V
22	Describe the Role of Robots in the Automotive Industry.	4M	L1	CO3	V
23	Write short notes on surgical assistance robots in healthcare.	4M	L1	CO3	V