



BRAINWARE UNIVERSITY

Term End Examination 2023-2024 Programme – Dip.RA-2022 Course Name – Robotic Fundamentals Course Code - ECPC402 (Semester IV)

Full Marks: 60 Time: 2:30 Hours [The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.] Group-A (Multiple Choice Type Question) 1 x 15=15 Choose the correct alternative from the following: (i) Name, A place where power, information, or a result leaves a system a) chassis b) output c) sensor d) troubleshooting (ii) Select, the position or alignment relative to points of the compass or other specific directions. a) Loops b) Sensor c) Chassis d) Orientation (iii) The branch of technology that deals with dimensions of microscopic proportion, is describe as? a) Nannytechnology b) Nanotechnology c) Microtechnology d) Micromachinery ____ require extra power to be able to work. (iv) State, the Hummingbird a) Sensors b) LEDs c) Motors d) Tri-Color LEDs (v) When working in a group for robotics, students report a) stay on task but don't work with other b) Socialize with group members outside of group members your group and then work alone c) Socialize with other group members and d) stay on task and work with other group don't help your group members appropriately (vi) Report, The 3rd law of robotics Spirit Isaac Asimov first announced the 3 laws of robotics in 1942. a) A robot may not injure a human being or, b) A robot can't go to school through inaction, allow a human being to

d) A robot must protect its own existence as long as such protection does not conflict

come to harm

c) A robot must obey orders given it by

human beings except where such orders

			First or Second Law		
(vii)	would conflict with the First State, engines and joints below		with the First or Second Law n?		
(viii)	a) Digestive systemc) Electric systemState, what are the component	its of the electric	b) Sensory systemd) Mechanic systemsystem?		
	 a) Electric joints and cables c) Engines and joints Indicate, the processor belong 		b) Baterries and electric wiringd) thunder and lightning		
(x)	a) Sensory system c) Electric system Report, The small mobile robo perform some but not all of th activities	et base used in the le tasks in the Rob	b) Mechanic system d) Control system Robot Educator. This robot is able tootics Engineering	0	
(xi)	a) Light sensorc) RobotState, the primary source of pl	hysical motion in	b) Lego Mindstorms Education Softd) Robot Educator Model (REM)the Mindstorms NXT system.	ware	
(xii)	a) Interactive Servo Motorc) Light SensorThe three characteristic capab	ilities that define	b) Behaviors d) Touch Sensor a robot		
(xiii)	a) Comment c) Sense-Plan-Act General term for any comman Programming Software, this is		b) Sensor d) NXT Brick mands in a program. In the NXT ks		
(xiv)	a) Commentc) PortsState, a Spherical coordinate re	obot should have	b) Code d) Robotjoints		
	a) One revolute and two prismc) Two revolute and one prismA manipulator with 6 DOF exp	a	b) Three prismatic d) a, b& c		
	a) 1-D Manipulator c) 3-D Manipulator		b) 2-D Manipulator d) Spatial Manipulator		
		Grou l (Short Answer Ty		3 x 5=15	
2. What do you understand by "humanoid robot"? 3. Give any two application of robots in the field of medicine 4. Define sensors and transducer. 5. Report, the Laws of the robotics? 6. Explain the types of rotary joint notations				(3) (3) (3) (3) (3)	
		OR	5		
Ex	plian pitch, yaw and roll?			(3)	
		Group	o-C		
		(Long Answer Ty	pe Questions)	5 x 6=30	
8. S 9. E 10. C 11. E		and Pneumatic ac		(5) (5) (5) (5) (5)	

(5)
