RV Educational Institutions ®
RV College of Engineering ®
Autonomous Institution Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE, New Delhi

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Academic year 2022-2023 (Odd Sem)

(OFFLINE CIE-II FOR I SEM CS STREAM)

DEPARTMENT OF CHEMISTRY

Date	20th February 2023	Maximum Quiz Marks	10
Course Code	22CHY12A	Maximum Test Marks	50
Sem - I	CIE-II	Duration (Quiz + Test)	120 Min
CHEMISTRY OF SMART MATERIALS AND DEVICES			

Instructions- All quiz questions should be answered in first 2 pages.

	Quiz	M	BTL	CO
1	Name the materials used as lead-free ceramic piezoelectric sensors.	1	1	1
2	Predict the possible structure of ascorbic acid due to release of two protons during electrochemical sensing.	1	3	4
3	Identify the property of polyaniline responsible for conduction.	1	2	3
4	Justify the role of electrolyte used in supercapacitor.	1	3	4
5	List any one limitations of super capacitor.	1	1	2
6	Write reduction reaction of photocatalytic water splitting.	1	2	3
7	Name the photosensitizer used in QDSSC.	1	1	2
8	At the functionalization site of CNT, mention the hybridization of carbon atom before and after functionalization.	1	3	2
9	Differentiate active and passive RFID tag.	1	5	3
10	Represent the different electrode's connections of electrochemical sensor using a diagram.	1	2	1

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	Test Questions	M	BTL	CO
1	Explain the construction and working of electro chemical sensor with suitable diagram. Illustrate the working mechanism of glucose sensors used in medical application with relevant chemical reactions.	7	2	1
2	What are RFIDs? Highlight the role of nano materials in RFID and explain its working mechanism in transportation, with neat schematic diagram.	7	3	3
3	In exciton generation of organic photovoltaics, the LUMO (Donor) should be in higher energy level than LUMO (Acceptor), justify. Explain the construction and working of organic photovoltaics.	7	5	4
4	Outline the synthesis of graphene by modified Hummer's method and comment on its optical and mechanical properties.	7	4	3
5	Explain the synthesis of CNT by modified chemical vapor deposition method and explain the need of functionalisation, with an example.	7	2	2
6	Explain the following with example (i) EDLC (ii) Pseudo capacitor.	8	2	2
7	Illustrate with neat labelled diagram the construction and working of quantum dot solar cell and the reactions involved in it.	7	1	1

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

	Particulars	CO1	CO2	CO3	CO4	L1	L2	L3	L4	L5	L6
Marks Distribution	Max Marks	2+14	3+15	3+14	2+7	3+7	3+2	3+7	7	1+7	
	Target	2+10	3+16	3+17	2+7						

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