Register Number:……..

KUMARAGURU
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GENERAL INSTRUCTIONS TO THE CANDIDATES

1. Candidates are instructed to answer the questions as per Bloom's Taxonomy knowledge level (K_1 to K_6)
2. Candidates are strictly instructed not to write anything in the question paper other than their roll number.
3. Candidates should search their pockets, desks and benches and handover to the Hall Superintendent/ Invigilator if any paper, book or note which they may find therein as soon as they enter the examination hall.
4. Candidates are not permitted to bring electronic watches with memory, laptop computers, personal systems, walkie-talkie sets, paging devices, mobile phones, cameras, recording systems or any other gadget / device /object that would be of unfair assistance to him / her.
5. Corrective measures as per KCT examination policies will be imposed for malpractice in the hall like copying from any papers, books or notes and attempting to elicit the answer from neighbours.

B.E/B.TECH DEGREE EXAMINATIONS:JUNE 2015

(Regulation 2014)

Second Semester

U14CHT203 : CHEMISTRY FOR CIRCUIT ENGINEERING

(Common to ECE/EEE/EIE & IT)

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match List I with List II & select the correct answer using code given below [K_1]

List I	List II
A.Bakelite	i.Poly acetylene
B.Nylon 6,6	ii.Electrical switches
C.Polythiazyl	iii.Schottky diode

D.Poly acetylene	iv.Textile industry

	A	B	C	D
a)	(ii)	(iii)	(iv)	(i)
b)	(iv)	(ii)	(i)	(iii)
c)	(i)	(iii)	(ii)	(iv)
d)	(ii)	(iv)	(i)	(iii)

2. ---------- is an example of copolymer. [K_1]

a) PVC b) Buna S

c) Polythene d) Nylon 6,6

3. The conductivity of polyacetylene can be increased by doping…….. [K_1]

a) Bromine b) Iodine

c) AsF5 d) Propionic acid

4. During secondary doping of polyaniline with m-cresol, conformational transition occurs due to ---------- [K_1]

a) molecular interaction b) molecular association

c) intermolecular bonding d) intramolecular bonding

5. Which of the following organic substances have herringbone-like structure? [K_1]

(i) Perylene (ii) Pentacene (iii) Rubrene (iv) Xylene

a) (i), (ii) b) (iii),(iv)

c) (i),(iv) d) (ii),(iii)

6. In smart cards, ---------- type OLEDs are used. [K_1]

a) transparent b) top emitting

c) foldable d) Bottom emitting

7. Direction to solve : [K_3]

The following items consists of two statements, one labeled as the “Assertion(A)” and other as “Reason(R)”. Examine these two statements and First decide whether Assertion is true or false and then the reason is true or false. Next decide whether the reasoning is the exact reason for the statement. Finally select the answers from the following codes.

Assertion (A): In TFT, the electrons are expelled from the surface when there is zero bias.

Reason(R): In TFT when there is zero bias, fermi level energy difference is created between the semiconductor and the metal.

a) Both A and R individually true and R is correct explanation of A
b) Both A and R individually true and R is not correct explanation of A
c) A is true but R is false
d) Both are false

8. Assertion (A):Water is known to cause electrical instability in TFT's. [K_2]
Reason(R) : Water is absorbed on the surface of TFT's and induces back channel effect.
a) A is true but R is false
b) Both are false
c) Both A and R individually true and R is correct explanation of A
d) Both A and R individually true and R is not correct explanation of A

9. Sequencing type item: [K_2]
Sequence the following steps in fabricating pentacene transistor.
1. Coating on a base to form a device such as transistor
2. Synthesizing pentacene
3. Achieving maximum conductivity
4. Doping with iodine and alkaline metals

a) 4, 2, 1, 3
b) 2, 1, 4, 3
c) 1, 2, 3, 4
d) 3, 2, 4, 1

10. Sequence the fabricating Polythiophenes based semiconductor. [K_2]
1. Binding with other molecules results optical active material
2. Addition and removal of electrons by doping for enhancing electrical conductivity
3. Delocalization of electrons along the polymer back bone
4. Polymerization of thiophene

a) 1, 2, 3, 4
b) 2, 4, 1, 3
c) 4, 3, 2, 1
d) 3, 2, 1, 4

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. Differentiate thermoplastics from thermosetting plastics. [K_2]
12. What do you mean by thermal transition in polymers? [K_1]
13. Write a note on the conductivity of polyaniline. [K_1]
14. Draw the structure of Poly(sulfur nitride) and polyacetylene. [K_1]
15. Why organic semiconductors are superior to inorganic semiconductors? [K_2]
16. What are the methods available to produce substrates for organic electronics? [K_1]
17. Write a brief note on operating mode of organic thin-film transistor. [K_1]

18. What are gate dielectrics? [K_1]

19. Compare the merits and demerits of engineered pentacenes. [K_2]

20. What do you mean by end substituted derivatives? Give any one example. [K_1]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

21.		Describe any one production method of organic light emitting diode. How is OLED's superior to conventional light emitting diode?		[K_2]
22.	(i)	Discuss free radical mechanism of chain growth polymerization.	(7)	[K_1]
	(ii)	Discuss briefly about the micro structures in polymers.	(7)	[K_1]
23.	(i)	Explain the doping of poly acetylene to enhance its electrical conductivity.	(7)	[K_2]
	(ii)	Discuss the conducting properties of stacked Phthalocyanine polymers.	(7)	[K_1]
24.	(i)	Describe reel to reel vacuum metallization process in detail.	(7)	[K_1]
	(ii)	What do you mean by solution based printing? How it is superior to conventional methods on fabrication of organo electronics material?	(7)	[K_2]
25.	(i)	Describe the field effect properties of Indolo[3,2-b]carbazole and its importance in the manufacture of organic electronics.	(7)	[K_2]
	(ii)	Explain how polythiophene nano particles are produced? List out its applications on the fabrication of organic electronics.	(7)	[K_1]
26.		Discuss the architecture, structure property relationship and any one method of improving performance of OTFT.		[K_2]

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