TOTAL PAGES: 2

22CHP313N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

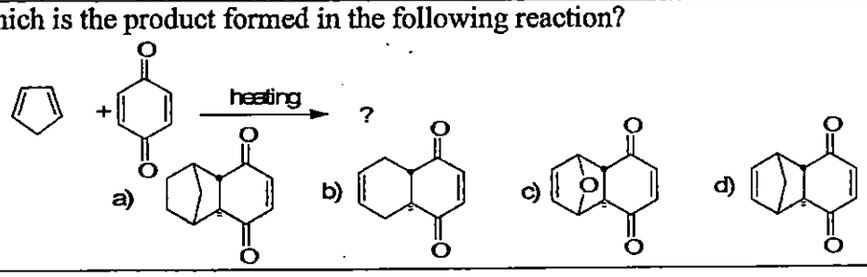
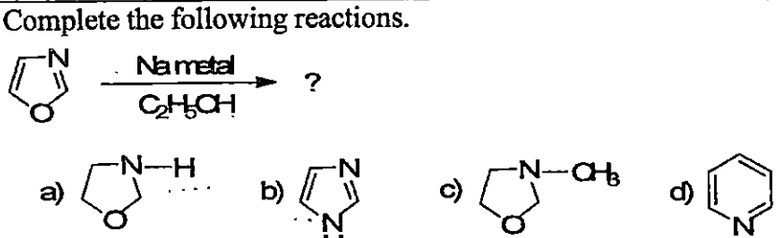
MSc DEGREE EXAMINATION DECEMBER 2025
(Third Semester)

Branch - **CHEMISTRY**

PHOTOCHEMISTRY, PERICYCLIC REACTIONS AND NATURAL PRODUCTS

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

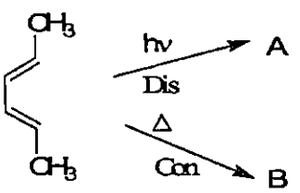
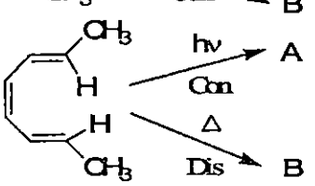
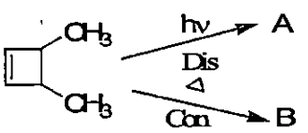
Q. No.	Question	K Level	CO
1	Non radiative process from the following is a) Fluorescence b) Phosphorescence c) Internal conversion d) Absorption	K1	CO1
2	In Paterno-Buchi reaction, the major product formed is _____. a) cis adduct b) trans adduct c) Racemic mixture d) Adduct formed from a long lived diradical intermediate	K2	CO1
3	A class of pericyclic reaction is a) Hydroboration reaction b) Reimer-Tiemann reaction c) Grignard reaction d) Diels-Alder reaction	K1	CO2
4	Which is the product formed in the following reaction?  	K2	CO2
5	Which vitamin is also known as riboflavin? a) Vitamin B1 b) Vitamin B2 c) Vitamin B6 d) Vitamin B12	K1	CO3
6	The molecular formulae of Quinine is a) $C_{20}H_{24}N_2O_2$ b) $C_{22}H_{24}N_2O_2$ c) $C_{20}H_{24}NO$ d) $C_{20}H_{20}N_2O_2$	K2	CO3
7	Anthocyanins is a a) Alkaloids b) Terpenoids c) Steroids d) Pigments	K1	CO4
8	Complete the following reactions.  	K2	CO4
9	Which species is used for the production of tetracycline? *a)* S. venezuelae *b)* S. griseus *c)* S. aureofaciens *d)* S. griseoflavus	K1	CO5
10	Testosterone and estrogen are a) Peptide hormones b) Steroid hormones c) Both of these d) None of these	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Q. No.	Question	K Level	CO
11.a.	Discuss the photochemical reactions of α, β – unsaturated ketones.	K3	CO1
	(OR)		
11.b.	Explain: i) Barton reaction ii) Photoreduction		
12.a.	Predict the products and suggest a suitable reason. i)  ii)  iii) 	K5	CO2
	(OR)		
12.b.	Explain with the help of FMO of (1,3) and (1,5) sigmatropic rearrangements.		
13.a.	Discuss the structural elucidation of Thiamine.	K5	CO3
	(OR)		
13.b.	Elaborate the structural elucidation of retinol.		
14.a.	Elucidate the structure of cyanin chloride.	K4	CO4
	(OR)		
14.b.	Explain the synthesis and applications of oxazole.		
15.a.	Discuss the chemistry of Cholesterol.	K4	CO5
	(OR)		
15.b.	Write a brief account on Oestrone and Equilinin.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Q. No.	Question	K Level	CO
16	Explain: i) Photocyclo additions ii) Photolytic rearrangements of cyclohexadienone	K4	CO1
17	With the help of correlation diagram, show that cyclisation of butadiene to cyclobutene on heating proceeds by conrotatory mode and photochemical proceeds by disrotatory mode.	K6	CO2
18	Elucidate the structure of starch.	K5	CO3
19	Discuss the chemistry of luteoline and kaemferol.	K4	CO4
20	Elucidate the structure of Chloromycetin.	K4	CO5

Z-Z-Z END