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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.



UG DEGREE END SEMESTER EXAMINATIONS - NOVEMBER 2024.

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc., BOTANY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
V	PART - III	CORE	U21BO510	PLANT BIOTECHNOLOGY & GENETIC ENGINEERING

Date & Session: 11.11.2024 / FN

Time: 3 hours

Maximum: 75 Marks

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer <u>ALL</u> Questions.
CO1	K1	1.	Who is the father of plant tissue culture? a) Morgan b) Haberlandt c) Ernest Haeckel d) Steward
CO1	K2	2.	The carbon source used in plant tissue culture is. a) Glucose b) Sucrose c) Fructose d) Lactose
CO2	K1	3.	Virus free plants are produced through. a) Callus culture b) Embryo culture c) Meristem culture d) Protoplast culture
CO2	K2	4.	Cybrids are. a) Nuclear hybrids b) Cytoplasmic hybrids c) Cytological hybrids d) Protoplasmic hybrids
CO3	K1	5.	EcoRI cleave DNA at the sequence. a) AAGCTT b) AAGTTC c) TATAGC d) GAATTC
CO3	K2	6.	Vir gene expression is triggered by. a) Octopine b) Nopaline c) Acetosyringone d) Agropine
CO4	K1	7.	The blotting technique used for identifying protein molecule in a sample is. a) RT-PCR b) Southern c) Northern d) Western
CO4	K2	8.	The technique used in recombinant identification is. a) Ligation b) Restriction digestion c) Replica plating d) Isolation
CO5	K1	9.	Golden rice is a engineered crop that contains. a) Vitamin A b) Vitamin B c) Vitamin C d) Vitamin D
CO5	K2	10.	Pest resistant Bt cotton contains _____ from a bacterium. a) Cry gene b) Nif gene c) Glyphosate d) All the above

Course Outcome	Bloom's K-level	Q. No.	SECTION - B (5 X 5 = 25 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	11a.	Brief the importance of totipotency. (OR)
CO1	K3	11b.	Discuss the various sterilization techniques.
CO2	K3	12a.	Give an account on apical meristem culture. (OR)
CO2	K3	12b.	Infer the production of artificial seeds.
CO3	K4	13a.	Narrate the enzymes used in gene cloning. (OR)
CO3	K4	13b.	Write short notes on plasmids and their types.
CO4	K4	14a.	Comment on insertional inactivation. (OR)
CO4	K4	14b.	Analyse the steps involved in Northern blotting.
CO5	K5	15a.	Elucidate antisense RNA technology. (OR)
CO5	K5	15b.	Describe GM plants with its applications.

Course Outcome	Bloom's K-level	Q. No.	SECTION - C (5 X 8 = 40 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	16a.	Elaborate the organization and requirements of a tissue culture laboratory. (OR)
CO1	K3	16b.	Write the composition and preparation of nutrient media.
CO2	K4	17a.	Highlight the procedure involved in callus culture and add a note on its applications. (OR)
CO2	K4	17b.	Discuss the various stages in protoplast culture.
CO3	K4	18a.	Organize the steps involved in construction of cDNA library. (OR)
CO3	K4	18b.	<i>Agrobacterium</i> is nature's plant genetic engineer - Substantiate it.
CO4	K5	19a.	Narrate the steps involved in Southern blotting. (OR)
CO4	K5	19b.	Explain the colony hybridization method.
CO5	K5	20a.	Describe the mass cultivation of biofertilizers. (OR)
CO5	K5	20b.	Summarize the terminator seed technology.