PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MCA DEGREE EXAMINATION DECEMBER 2025
(Third Semester)

Branch – **COMPUTER APPLICATION**

MAJOR ELECTIVE COURSE – II : SOFTWARE SECURITY

Time: Three Hours   Maximum: 75 Marks

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

Module No.	Question No.	Question	K Level	CO
1	1	_____ occur when data is written outside of the boundaries of the memory allocated to a particular data structure a) Null pointer b) Buffer Overflow c) Software Vulnerability d) All of the above	K1	CO1
	2	_____ are methods, techniques, processes, tools or runtime libraries that can prevent or limit exploits against vulnerabilities. a) Exceptions b) ADTS c) Mitigations d) All of the above	K2	CO1
2	3	Loop limited by lower bound refers to _____ a) The loop increments an indirectable pointer until it is equal to high b) The loop performs N repetitions where N is less than or equal to the bound of P, and the pointer designates a sequence of objects, for example P through P-N+1 c) The loop performs N repetitions where N is less than or equal to the bound of P, and the pointer designates a sequence of objects, for example P through P+N+1 d) The loop decrements an indirectable pointer until it is equal to low	K1	CO2
	4	The process space of ELF(Executable & Linking Format) binary a section called the _____ a) Runtime linker b) dtors section c) Global Offset Table d) All of the above	K2	CO2
3	5	_____ are used by the organizations and Internet service providers to intercept, inspect and forward HTTP requests on behalf of their users. a) Servers b) Cookies c) Proxies d) HTTP Requests	K1	CO3
	6	A _____ request is used to allow files to be uploaded to the server at the specified target URL. a) GET b) PUT c) TRACE d) None	K2	CO3
4	7	_____ is best suited to probing configuration problems and other environmental factors that deeply impact software security a) White box Testing b) Penetration Testing c) Both A &B d) None of the above	K1	CO4
	8	_____ is meant to capture the checklist-like approach risk analysis taken in Microsoft's STRIDE approach a) Ambiguity b) Attack Resistance analysis c) Architectural Analysis d) All of the above	K2	CO4
5	9	_____ testing involves testing security mechanisms to ensure that their functionality is properly implemented a) Adversarial Security b) Functional Security c) Penetration d) All of the above	K1	CO5
	10	_____ involves performing risk based security testing motivated by understanding and simulating attacker's approach a) Adversarial Security b) Functional Security c) Risk Management d) Risk Analysis	K2	CO5

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SECTION - B (35 Marks)
Answer **ALL** questions

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

Module No.	Question No.	Question	K Level	CO
1	11.a.	Illustrate notable vulnerabilities in Formatted output.	K3	CO1
		(OR)		
	11.b.	Compare Null termination errors & off-by-one error with suitable example.		
2	12.a.	Discuss Function pointers.	K2	CO2
		(OR)		
	12.b.	Explain Double-free vulnerabilities.		
3	13.a.	Outline HTTP Cookie Semantics.	K3	CO3
		(OR)		
	13.b.	Briefly explain chunked data transfers.		
4	14.a.	Discuss common themes among security Risk analysis approaches.	K5	CO4
		(OR)		
	14.b.	Summarize traditional risk analysis terminology.		
5	15.a.	Outline Risk Management and Security testing.	K5	CO5
		(OR)		
	15.b.	Discuss Leapfrogging the penetration test.		

SECTION -C (30 Marks)
Answer **ANY THREE** questions

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

Module No.	Question No.	Question	K Level	CO
1	16	Discuss about exploiting formatted output functions.	K2	CO1
2	17	Distinguish C++ Dynamic memory management.	K3	CO2
3	18	Classify HTTP Request Types.	K4	CO3
4	19	Explain how Software Penetration testing is done.	K5	CO4
5	20	Summarize touchpoint process and creating useful Abuse cases.	K5	CO5

Z-Z-Z $\qquad$ END