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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

Nov / Dec

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, 2024

MINING ENGINEERING

VII Semester

MI5004 Computer Applications in Mining

(Regulation 2019)

Time: 3hrs

Max. Marks: 100

CO1	The students will have basic programming knowledge and its applications on various mining related problems.
CO2	The students will have familiarity with hardware and software issues during development of programs.
CO3	The students will understand about geo-statistics, kriging, ore body modeling, mine optimization, etc
CO4	The students will have a perspective on high-end simulation methodologies and modern techniques to solve mining problems.
CO5	The students will learn about recent numerical software applicable to mining industries.

**BL – Bloom's Taxonomy Levels**

(L1-Remembering, L2-Understanding, L3-Appling, L4-Analysing, L5-Evaluating, L6-Creating)

**PART- A (10x2=20Marks)**

(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	State the importance of processor and RAM.	2	1	1
2	Briefly explain function of operating system	2	1	2
3	Define term 'Algorithm'.	2	2	1
4	Differentiate database with Relational Database	2	2	2
5	List out various techniques of reserve estimation techniques	2	3	1
6	Briefly explain the concept of Kriging technique.	2	3	2
7	What is match factor in Truck Dispatch System?	2	4	1
8	Differentiate the modeling and simulation.	2	4	2
9	Define Artificial Intelligence.	2	5	1
10	Briefly discuss function IROC (Integrated Remote Operating Centre).	2	5	2

**PART- B (5x 13=65Marks)**

(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a)	Explain in detail various component of computer configurations and its function.	13	2	3
OR				
11 (b)	Discuss in detail the evolution of operating systems from initial time computer till recent time,	13	2	3
OR				
12 (a)	Discuss in detail Algorithm of Blast Design for green field surface mining project to achieve the desired fragmentation size.	13	1	4
OR				
12 (b)	Explain in detail Normalization method adopted to convert DBMS in to RDBMS.	13	1	4

13 (a)	Deliberate reserve estimation technique used in geo-statistics method.	13	3	3
<b>OR</b>				
13 (b)	Discuss in detail Block modeling, optimization of ore body and schedule method.	13	3	3
14 (a)	Discuss in detail the Ventilation Network Analysis concept and software functional applications.	13	4	4
<b>OR</b>				
14 (b)	Explain in detail FEM and CFD techniques and its applications in mining industry.	13	4	4
15 (a)	Write the notes of following i. Neural Network ii. Expert System	7 6	5	3
<b>OR</b>				
15 (b)	Discuss in detail fragmentation software principle and its application in mining & process.	13	5	3

**PART- C(1x 15=15Marks)**  
(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.	Discuss in detail to have web dashboard for the country head which have features like production details of various minerals, daily, monthly, Quarterly, yearly till date and should have various methods of mining techniques, demand requirements and analysis & its Key Performance Indicator (KPI). The scope should include the configuration of computers, OS, network configurations, database design, AI tools and various software to be used for the purpose of the dashboard.	15	1,2,5	5

