

**INSTITUTE OF ADVANCED STUDIES IN
EDUCATION (DEEMED UNIVERSITY)
GANDHI VIDYA MANDIR
SARDARSHAHR**

DETAILED SYLLABUS

MASTER OF BUSINESS ADMINISTRATION

With Specialization In

DISASTER MANAGEMENT

TWO YEARS POST GRADUATE DEGREE PROGRAMME

(SEMESTER SYSTEM)

COURSE TITLE : **MASTER OF BUSINESS ADMINISTRATION**
DURATION : **2 YEARS (Semester System)**
TOTAL MARKS : **1600**

FIRST SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
INTRODUCTION AND DIMENSIONS OF NATURAL AND ANTHROPOGENIC DISASTERS	MBA(DM) - 101	100	00	100
MANAGEMENT & ORGANIZATIONAL BEHAVIOR	MBA(DM) - 102	100	00	100
COMMUNICATION SYSTEMS	MBA(DM) - 103	100	00	100
NATURAL AND MANMADE DISASTER STUDIES	MBA(DM) - 104	100	00	100

SECOND SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
OPERATION MANAGEMENT	MBA(DM) - 201	100	00	100
DISASTER PREPAREDNESS AND DECISION MAKING	MBA(DM) - 202	100	00	100
PREVENTIVE LAWS IN DISASTER MANAGEMENT	MBA(DM) - 203	100	00	100
AGENCIES IN DISASTER MANAGEMENT	MBA(DM) - 204	100	00	100

THIRD SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
INFORMATICS FOR DISASTER MANAGEMENT	MBA(DM) - 301	100	00	100
QUANTITATIVE TECHNIQUES FOR DISASTER MANAGEMENT	MBA(DM) - 302	100	00	100
CRISIS MANAGEMENT	MBA(DM) - 303	100	00	100
MICRO FINANCING FOR REHABILITATION AND RESETTLEMENT	MBA(DM) - 304	100	00	100

FOURTH SEMESTER

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	PRACTICAL	TOTAL
RESEARCH METHODS IN DISASTER MANAGEMENT	MBA(DM) - 401	100	00	100
BANKING, FINANCE & INSURANCE IN DISASTER MANAGEMENT	MBA(DM) - 402	100	00	100
RISK ASSESSMENT	MBA(DM) - 403	100	00	100
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND DISASTER MANAGEMENT	MBA(DM) -204	100	00	100

NOTE:

Theory Paper: **30%** Continuous Internal Assessment and **70 % University examination.**
Practical Paper: **30%** Continuous Internal Assessment and **70 % University examination.**
Minimum Pass Marks: **40%**

Continuous Internal Assessment:

- 1) Two or three tests out of which minimum two will be considered for Assessment
- 2) Seminars/Assignments/Quizzes
- 3) Attendance, class participation and behavior

70% of Continuous Internal Assessment
30% of Continuous Internal Assessment
10% of Continuous Internal Assessment

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks: 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

A) Instructions for paper-setter

1. The question paper will consist five sections namely A, B, C, D and E.
2. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 14 marks each. Candidates have to attempt at least one question compulsorily from each section.
3. Section E will comprise of 10 short answer type questions, which will cover the entire syllabus and will carry 14 marks candidates will have to attempt any 7 questions.

B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section: A

Structure of The Atmosphere; Pressure, Temperature, Precipitation, Cloud Classification and Formation; Coriolis Force; El Niño Phenomenon; Western Disturbances, Energy Model and Budget of the Earth. Primary Differentiation and Formation of Core, Mantle, Crust, Atmosphere and Hydrosphere, Magma Generation and Formation of Igneous Rock, Weathering, Erosion, Transportation and Deposition of Earth's Material by Running Water, River Meandering and Formation of Ox-bow Lake.

Section: B

Depletion of Natural Capital, Development as Causes of Disaster, Rapid Population Growth, Environmental Pollution, Epidemics, Industrial Accidents and Chemical Releases, Multipurpose Project and Resettlement Issues, Humanitarian Assistance in Emergencies.

Section: C

Floods- Flood Plains, Drainage Basins, Nature and Frequency of Flooding, Flood Hazards, Urbanization and Flooding, Flood Hydrographs, Dams Barrages and River Diversions, Creation of Reservoir, Influence on Micro-climate, Impact on Flora and Fauna. Land Slides – Landslide Analysis, Determination of Stability and Safety Factor. Coastal Hazards – Tropical Cyclone, Coastal Erosion, Sea Level Changes and its Impact on Coastal Areas and Coastal Zone Management. Climate Change- Emissions and Global Warming, Impact on Sea Level in South Asian Region Environmental Disruptions and Their Implications.

Section : D

Earth Quakes – Preliminary Concept, Seismic Waves, Travel-time and Location of Epicenter, Nature of Destruction, A Seismic Designing, Quake Resistant Buildings and Dams. Tsunamis – Causes and Location of Tsunamis, Disturbance in Sea Floor and Release of Energy, Travel Time and Impact on Fragile Coastal Environment. Volcanoes – Causes of Volcanism, Volcanic Materials, Geographic Distribution of Volcanoes.

Reference:

- William H. Dennen and Bruce R. Moore, WCB Publishers, Iowa, 1986.
- John M. Wallace and Peter V. Hobbs, Atmospheric Science: An Introductory Survey, Academic Press, New York, 1977.
- Egbert Bockert and Rienk Van Grondille, Environmental Physics, John Wiley Sons Ltd., 1999.
- Barbara W. Murk et al., Environmental Geology, John Wiley & Sons, New York, 1996.
- Bohle, H.G., Downing, T.E. and Watts, M.J. Climate Change and Social Vulnerability; The Sociology and Geography of Good Insecurity, Global Environmental Change No. 4, pp. 37-48.

MBA (DM) – 102 MANAGEMENT & ORGANIZATIONAL BEHAVIOR

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks: 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

A) Instructions for paper-setter

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B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section: A

Management and Planning: Nature and Scope , Management Process, Roles, Skills and Competencies, as they Concern Disaster Management, Pre-Disaster Management Activities Including, Hazard and Vulnerability Analysis, Capability Assessment, Emergency/Contingency Planning and Post-Disaster Management Activities, Development Planning, Planning Environment, Types of Plans, MBO, SWOT Analysis, Decision-making Models and Processes. Controlling – Control Systems, Budgetary Control Measures Related to Disaster Management Activities.

Section: B

Organizing – Organizational Structure and Design , Authority, Delegation and Decentralization Issues Related to Organizations Engaged in Disaster Management Activities.

Section: C

Group Dynamics and Controlling – Nature, Approach and Attitudes Required to Establish Effective Autonomous Work Groups. Understanding the Concept of Team-building, Motivation Theories and Applications.

Section: D

Leadership and Organizational Behavior – Study of Interpersonal Relationship and Organizational Behavior as they apply to Emergency/Disaster Administration and Operations, Leadership, Conflict Management. Organization Development and Change – Procedures Necessary to Enable Relief Agency or any Organization Related to Disaster Management Activities, to Anticipate an Implement Changes in an Organization or Project, Change-process, Types of Change, Environment for Change. Communication and Public Relations.

Reference:

- James A.F. Stoner, R. Edward Freeman and Daniel. R. Gilbert, J Management, 6th Edition, Prentice Hall, Inc., 1995.
- Stephen P. Robbins. David A. Decenzo, Fundamentals of Management, 3rd Edition, Pearson Education (Singapore) Pte. Ltd. 2001.
- John R. Schermer Horn, James G. ttant, Richard N. Osborn, Organizational Behavior, 7th Edition John Wiley & Sons, 2001.
- Simon Lilley, Liz Fulop and Stephen Linstead, Management and Organization , Palgrave Mc. Millan , 2004.

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks: 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

A) Instructions for paper-setter

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B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section : A

Introduction to Telecommunications – Communications Principles & System, Analog Vs Digital Communications, Satellite Vs Terrestrial Communications, Practical Vs Ideal Channels; Distortion & Noise Effects, Overview of Transmission Media Used, Concept of Modulation; Baseband Vs Pass Band Transmission, Amplitude, Phase & Fequency Modulation Techniques (AM/PM/FM). Radio Bradcast Systems – AM Radio Systems, Telecommunications Networks – POTS, Local Loops, Switched Telephone and Data Networks, Switching Methods.

Section : B

Multiple Access & Multiplexing – Multiple Access Vs Multiplexing, Frequency Division Multiplexing/Frequency Division Multiple Access (FDM/FDMA), Time Division Multiplexing/ Time Division Multiple Access (TDM/TDMA), Code Division Multiplexing/ Code Division Multiple Access (CDM/CDMA). Electronic Warning Systems – Electronic Warning System; Sensors, Alarms & Information Networks, Role of Communications Systems in Prediction/Early Warning of Impending Disasters, Effect of Disasters on Wire Line and Wireless Communication Links Under Catastrophe, Post-disaster Management Through Establishment of Fresh/Emergency Communication Links.

Section : C

Wireless Voice Centric Communications – Mobile Vs Cellular Telecommunications, Concept of Cells, Frequency Reuse & Handoffs, Channel Transmission Mechanisms; LOS, Reflection, Refraction, Diffraction & Scattering, IG/2G/3G Voice Oriented Wireless Technology.

Section : D

Satellite Communications – Concept of Satellites as Repeaters in Space; Downlink/Uplink Channels & Transponders, Satellite Vs Conventional Terrestrial Systems, Orbital Laws, Beam Switching, Satellite Footprints & Diversity Concepts, LEO Vs MEO s GEO Satellites, Mobile Satellite Telecommunications, Role of Satellite Communication Links in Disaster Management.

Reference:

- Communication Systems by Kennedy (Publishers: TMH)
- Data Communications and Networking Forouzan 2nd Edition (TMH)
- EleniCommunication Systems by Tomasi, 4th Edition (Pearson Education)
- Satellite Communication Engineering by Gagliardi (Publishers: John Wiley)

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Continuous Internal Assessment : 30 Marks

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B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section: A

Earthquakes: Introduction, General Characteristics, Mechanism, Causes and Effects, Prediction, Seismic Zones, Seismic Waves, Vulnerability, Damage Potential – Magnitude and Intensity, Geological and Geographical Analysis, Epicenter, Characteristics of General Motion & Attenuation. Landslide and Land Degradation: Causes, Tectonic Conditions, Erosion, Avalanches, Rockfall, Damage Assessment. Floods: General Characteristics, Causes, Geomorphology and Floods, Flood Forecasting, River and Coastal Floods, Flash Floods, Lake Outburst, Risks Environmental Planning, Flood Control and Management. Fire: Urban Area Fire, Building Construction and Structural Fire Protection, Electric Hazard Shock and Protection, Aircraft Fire, Action Required for Rescue and Fire Fighting in Aircraft and Airports, Forest Fire, Explosives, Fire Hazard and Protection in Special Risk Areas, Coal Fire.

Section: B

Cyclones and Tsunamis: Structure and Nature of Cyclones & Tsunamis, Characteristics, Hazard Donation, Factors, Hazard Potential, Impact Assessment. Coastal and Marine Environment Pollution and Control: marine Environment, Environment Degradation, Landuse Changes in Coastal Zone, Waves, Tidal Storms, Erosion, Habitat Pollution, Sediment Discharge and Control. Water and Air Pollution: Air Quality, Urban Air Pollution, Pollutants, Sources, Ground Water Pollution Sources & Hazards of Pollution. Oil Spills in Water; Sources and Hazards.

Section: C

Droughts: Droughts, Causes, Vulnerability, Types, Famines, Deserts and Desertification. Biodiversity Extinction and Deforestation; Biodiversity, Species at Risk, Loss of Biodiversity, Management of Species Diversity, Deforestation its Causes & Adverse Effects. Green House Effects and Global Climate Change: Green House Gases, Effects, Global Warming & its Effects, Ozone Depletion, Changes in Carbon-di-oxide, Impact on Ecosystem. Mining: Mining and Environment, Land & Environment Degradation and Management, Mined Land Reclamation.

Section: D

Industrial Disaster: Manmade Hazards, Toxic Chemicals, Noise Pollution, Environment and Ground Waster Pollution and Management, Solid Waster Management. Epidemics: Health Risks, Chemicals, Diseases, Future Diseases, Medical Aid, Vulnerability Analysis, Preparedness, Rehabilitation. War and Chemicals: Hazardous Wastes, Reactivity, Toxicity, Nuclear War, Biological Weapons, Armed Conflicts, Land Mines etc.

Reference:

- World Institution Building Programme Centre for Institutional Material Preparation and Development 2004, Masters of Disaster Mitigation, Papers -1-16.
- Disaster Prevention and Mitigation 1984: UNDRO Publications, Geneva.
- World Disaster Report 1993, International Federation of Red Cross.
- Alexander, D. 19 National Disaster, UCL Press Ltd London.
- Collins Larry R. and Scheind Thomas D. 2000. Disaster Management and Preparedness. Taylor and Francis, 2000

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks : 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

A) Instructions for paper-setter

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B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section: A

Introduction to Operation Management, Nature and Scope of Operation Management, Current Issues Facing Operation Management, Relevance of Operation Management in Disasters.

Section: B

Supply Chain Management – Concepts, Issues in Supply Chain Management, Types of Intermediaries, Channel Objective & Constraints, Channel Selection & Management. Managing Supply Chain in Disaster Situation.

Section: C

Logistics Framework – Concept, Objective & Scope, Transportation, Warehousing, Inventory Management. Role of Logistics in Disaster.

Section: D

Recent Trends in Operation Management, Automation, Computer Application, Automated Guided Vehicle (AGV), Robotics, Flexible Manufacturing System, Material Handling Equipment. Use of Technology in Disaster Management.

Reference:

- Ebert “Production & Operation Management”.
- Krajewski & Ritzman, “Operation Management Strategy Analysis” Prentice Hall of India.
- S. N. Chary, “Production & Operation Management”, Tata McGraw Hill, 2005.
- William H. Dennen and Bruce R Moore , WCB Publishers, IOWA, 1986.

MBA (DM) – 202 DISASTER PREPAREDNESS AND DECISION MAKING

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks : 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

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B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section: A

Global Disaster : Science and Policy, Institutional Framework For Disaster Preparedness and Mitigation – Global and Indian Scenario, Managing Natural an Anthropogenic Disasters, Risk Assessment and Analysis, Principles and Practice of Disaster Response Operations and Management, Disaster Planning, Public Administration/Policy and Emergency Management, Incident Command Centre, Training Need Analysis and Human Resource Development Plan, Corporate / Public Agency Coordination, The Human Element in Preparedness Planning, Current Trends in Disaster Preparedness.

Section: B

Hazard Monitoring, Tracking and Modeling, Early Warning System, Warning Protocols, India Disaster Resource Network, Environmental Hazards, Public Health Aspects of Disaster Management and Emergency Services Systems, Urban Hazards and Disaster ; An Introduction to Disaster Planning, Fire Services Preparedness, Emergency Sanitation/Shelter Environments.

Section: C

Conceptual and Applied Issues in Emergency Management: Operational Decision Making, Introduction to Emergency Management and Planning, Organization and Structure for Emergency Management, Emergency Management Research – Methods/Analysis Public Information for Emergency Management, Principle and Practice of Disaster Relief and Recovery, Logistic Support System, Computer Applications in Emergency Management.

Section: D

Principles of Natural Hazard Reduction, Toxicology and Biohazards in Emergency Management, Terrorism Preparedness; Critical Infrastructure and Emergency Management, Emergency Preparedness, Response, and Planning for Hazardous Materials, Terrorism, WMD, and Other Contemporary Issues, Incident Management Systems and Emergency Operations Centre, Contingency Planning, Community Emergency Response Team, Community Relations for Environmental and Emergency Managers, Contingency Planning for Business and Industry, International Disaster.

Reference:

- Living With Risk: A global Review of Disaster Reduction Initiatives 2004 Vision, United Nations, 2004.
- Parasuraman S., India Disaster Report: Towards Policy Initiatives, Oxford University Press, 2004.
- Arnold , Margaret and Kreimer, Alcira (eds) , “Managing Disaster Risk in Emerging Economic”, Disaster Risk Management Series No. 2, World Bank , Washington, D.C. 2000.

Maximum Time : 3 Hrs.
 Total Marks : 100
 Minimum Pass Marks : 40%

University Examination : 70 Marks
 Continuous Internal Assessment : 30 Marks

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B) Instructions for candidates

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2. Use of non-programmable scientific calculator is allowed.

Section: A

Role of the Union and the States in Disaster Management Article 246 of the Constitution, Distribution of Legislative and Administrative Powers Between the Union and The States with Special Reference to Following Entries of Seventh Schedule. Union List : Entry No .6, 7, 15, 22, 53, 54, 55, State List Entry No 1, 2, 5, 6, 25 Concurrent List Entry No 18, 19, 29, 36 , Functions of Designated Ministries (MoH as the Nodal Agency)

Section: B

Important Statutes with Provisions Relevant to Disaster Management : Role of Legislations in Disaster Management, Scope of Disaster Management Law with Reference to Disaster Management Bill 2005, Disaster Management Laws in Bihar and Gujarat, Essential Services Maintenance Act, Environment Protection Act 1986, Including hazardous Substances Rules , Explosives Act 1872, Explosive Substances Act 1908, Mines and Minerals (Regulation and Development) Act 1957, Insecticides Act 1968, Atomic Energy Act 1962, Factories Act 1948, WMD Bill 2005

Section: C

Planning and Disaster Vulnerability: Planning Commission in Disaster Management, Part IX A, Local Bodies (Municipalities and Panchayati Raj Institutions) , Panchayats, Article 243 G Read with Eleventh Schedule of the Constitution, Municipalities , Article 243 W Read with 12th Schedule of The Constitution , Model Town and Country Manning Act 1960.

Section: D

Local Administration and Disaster Risk Reduction: Municipalities Legislations with Reference to DMC Act 1957, Power and Functions of Local Administration with Reference to Following Matters and Case Studies, Building Byelaws, Ahmedabad Building Collapses in 2001 Gujarat Earthquake, Fire Safety Norms, Uphaar Cinema and Tamilnadu School Fire Tragedies , Municipal Services, Plague in Surat, Crowd Management , Satara Stampede , NOC for Industrial Undertakings, Bhopal Gas Tragedy.

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks : 40%

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Continuous Internal Assessment : 30 Marks

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B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section: A

International Agencies: United Nations and its Specialized Agencies Like UNDP, FAO, WHO, AEC (Atomic Energy Commission), United Nations Disaster Management Cell, New Delhi, International Federation of Red Cross and Red Crescent Societies (IFRC) and National Red Cross / Red Crescent Societies.

Section: B

National Agencies : Disaster Management Cell (Ministry of Home Affairs, Govt. of India) , National Institute of Disaster Management, Indian Red Cross Society, Planning Commission , National Civil Defence Organization, Bharat Scouts and Guides Military and Para-Military Forces, Corporate Bodies etc.

Section: C

State and District Level Agencies: Disaster Management Cells at State Level and District Level , District Magistrate Office, Role and Responsibilities of DM in Prevention, Preparedness, Mitigation, Relief and Rehabilitation, Local Bodies and Role of Different Functionaries.

Section: D

Civil Society Agencies: NGO's Religious and Cultural Organizations, Community Based Organizations, Political Parties and Their Affiliates, Philanthropic Organizations, Recent Case Studies on the Role Played by Various Civil Society Organizations During Disasters.

Reference:

- Disaster Management in India – A Status Report, National Disaster Management Division , Ministry of Home Affairs, Govt. of India, 2004.

Maximum Time : 3 Hrs.
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B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section : A

Introduction to Computers – Its Components and Functions, Applications in Various Fields of Science and Management. Data Storage – Primary and Secondary Storage, Introduction to Various Computer devices Such a Keyboard, Mouse, Printers, Disk Files, Floppies etc. Data Representation – Number Systems, Character Representation Codes, Binary, Hex, Octal Codes and their conversion. Binary Arithmetic, Floating Point Arithmetic, Signed and Unsigned Numbers. Concepts of the Finite Storage Bits, Bytes Kilo, Mega and Gigabytes Concepts of Character Representation. Concept of Computing, Contemporary, Operating Systems Such as DOS, Window'95, UNIX etc. (only brief user level description). Introduction to Internet and its use.

Section :B

Use of MS-Office Packages. Introduction to Programming- Concept Algorithms, Flow Charts, Example of Algorithms Such as how to add ten number, Roots of a Quadratic Equation. Concept of Sequentially Following up the step of a algorithm. Notion of Program, Programmability and Programming Languages, Structure of Programs, Object Codes, Compilers, Writing a Simple Program in a Language Like "C".

Section : C

Role of Information in Disaster Management; Federal Role in Disasters and Disaster Information, Disaster Information and Management Community, Conceptual Flow of Disaster-related Information. Needs of the Users of Disaster Information; Background, Capturing User Needs, Current Environment. Disaster Information Provider; Responsibilities of the Provider Community, Functions of the Provider Community, Information Generation, Recent Changes. Disaster Information Infrastructure; Information Infrastructure Needs by Disaster Phase, Modes of Communication, Future of the Disaster Information Infrastructure.

Section : D

Moving to a Disaster Information Network (DIN) for the Future; Background, Findings, Foundation for Addressing Needs, Vision for a Future Disaster Information Network, Fundamental Need to Involve Stakeholders. Recommendation and Action Plan; Policy and Organization Implementation, Phased Approach; The Global Extension, Analysis of the Ratio of Cost to Benefits. Global Consideration; Global Phase, GIDN International Goals, Priorities, GDIN International Model, Possible GDIN Management Packages, Possible GDIN Partners.

Reference:

- Gary B. Shelley, Thomas I Cashmar, Mistry E. Vermoat Discovering Computer 2005: A Gateway to Information.

MBA (DM) - 302 QUANTITATIVE TECHNIQUES FOR DISASTER MANAGEMENT

Maximum Time : 3 Hrs.
Total Marks : 100
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2. Use of non-programmable scientific calculator is allowed.

Section: A

Introduction to Decision Theory, Decision Under Certainty , Risk and Uncertainty , Decision Tree Analysis, Marginal Analysis, Case Discussions on Decision Theory Involving Disaster Scenario.

Section :B

Game Theory: Characteristics , Two Person Zero Sum Game, Pure and Mixed Strategy, Law of Dominance, Modified Dominance , Graphical Method Case Discussion on Game Theory and Application.

Section :C

Transportation Problem : Initial Basic Feasible Solution, Test for Optimality, Application in Disaster Scenario, Case Studies. Assignment Problem; Hungarian Method, Multiple, unbalanced and Maximization, Case Discussion on Assignment Problems and Application.

Section: D

Network Analysis: PERT and CPM , Concepts of Slack , Floats , Crashing, Application of Network Techniques, Case Discussion.

Reference:

- Mottegoga , N.T. and Rosso. R. 1998 Statistics , Probability and Reliability for Civil and Environmental Engineers, MCGraw-hill, NY
- Johnson, R.A. 1999 Miller and Freund's Probability and Statistics for Engineers, Prentice-Hall of India Pvt.Ltd. New Delhi.
- Manly, B.f.J. 1994 Mutivariate Statistical Methods, A Primer. Chapman and Hall, London
- Manly , B.f.J. 2001 Statistics for Environmental Science and Management Chapmana and Hall London

Maximum Time : 3 Hrs.
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2. Use of non-programmable scientific calculator is allowed.

Section: A

Disasters Issues and Crisis Management; Definitions and Overview of Risks and Dangers, Impact of Globalization on Crisis and Mass Disasters

Section: B

Identifying Potential Crisis Situations: Discuss Selected Case Studies to Analyze the Potential Impact of Disasters, prepare a Foundation of a Sound Crisis Management Plan.

Section: C

Crisis Management Preparedness: Preparing the Plan, Training and Testing, Crisis Communication, Stress Management, Crisis Operation Guidelines.

Section: D

The Disaster Recovery Planning: Emergency Management Teams, National and International Disaster Recovery Policies, Managing the Economy and Essential Services in Emergencies, managing the Media and Popular Conscience.

Reference:

- Mutchopadhyaya, A.K. 2005 Crisis and Disaster Management Tuberlance and Aftermath” newage International Publications, New Delhi

Maximum Time : 3 Hrs.
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B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section: A

Introduction to Micro Finance: Definition of Micro Finance, Evolution of Micro Finance as a Means of Development, Context of Evolution and Role of Micro Finance Institutions in Poverty Alleviation, Food Security and Alternate Livelihood Support Systems.

Section: B

Micro Finance Models & Institutions: Bangladesh Grameen Bank Model, SHG-Bank Linkage Model, Community Banking , Credit Unions and Co-operatives, SHG-NGO-Bank Linkage Model, Success Stories, NARBARD, MYRADA , SEWA, PRADAN Village Bank of FINCA (Latin America) SANASA of Sri Lanka, Not for Profit MFI's (NGO-MFI's and Non-Profit Companies), MACS (Mutually Aided Co-operatives Societies) For Profit MFI's, NBFCs.

Section: C

Role of Different Agencies: International Agencies, World Bank, ADB, DFID & International NGO's , National Agencies NARBARD, RBI, RMK, Ministry of Rural Development , State Government Agencies, RRB's & Co-operatives & national & Local NGO's.

Section: D

Micro Finance in Disaster Mangement; Micro Finance Based Community Development Project, Water Shed Management Schemes, Forest Conservation, Coast Line Plantation, Community Aforestation, Case Studies.

Reference:

- Hulme, David and Paul Mosley, "Finance Against Poverty", Routledge London, 1996.
- Meyer, Richard L, "Micro Finance, Poverty Alleviation and Improving Food Security: Implications for India" in Food Security and Environmental Quality, CRC Pres LLC, Boca Raton, FL. 2002.
- ADB, "Finance for the Poor: Micro Finance Development Strategy", Asian Development Bank, Manila, 2000.
- Bouman, FJA, "Small, Short and Unsecured: Informal Rural Finance in India", Oxford University Press, Delhi, 1989.

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks: 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

A) Instructions for paper-setter

1. The question paper will consist five sections namely A, B, C, D and E.
2. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 14 marks each. Candidates have to attempt at least one question compulsorily from each section.
3. Section E will comprise of 10 short answer type questions, which will cover the entire syllabus and will carry 14 marks candidates will have to attempt any 7 questions.

B) Instructions for candidates

1. Candidates are required to attempt one question each from sections A, B, C and D of the question paper and the any seven questions from section E.
2. Use of non-programmable scientific calculator is allowed.

Section : A

Introduction Research – Definition, Scope and Objective, Types, Approaches, Significance, Scientific Investigation. The Research Process – the Broad Problem Area, Preliminary Data Collection, Problem, Selection and Definition, Theoretical Framework, hypothesis Development and Elements of Research Design, Experimental Design – the Laboratory Experiment , Variables, Validity, Types of Experimental Designs.

Section: B

Data Measurement, Collection, Processing and Analysis, Measurement Measurement in Research, Operational Definition, measurement Scales, Scaling, Scaling Techniques , Reliability and Validity, Data Collection – Sources of Data, Data Collection Methods, Interviewing, Questionnaires, Others Methods of Data Collection. Data Processing and Analysis – Review of Statistical Data Analysis.

Section: C

Sampling – Introduction, Need and Purpose of Sampling , Population and Sample , Population Frame, Sampling with and without Replacement , Population parameters. Sampling Theory – Sampling Distributions, parameter Estimation, Hypothesis Testing, Sampling Designs – Probability and Non-probability Sampling.

Section: D

Interpretation and Report Writing – Interpretation , meaning, Need , Technique, Report Writing – the Research Proposal , Report , Integral parts of the Report, Steps Involved in Report Writing, Types of Reports, Oral Presentation, Conclusions.

Reference:

- Singleton, R.A.Jr. and Straits B.C. 1999 Approaches to Social Research Oxford university Press NY
- Moore D.S. 1999 The Basic Practice of Statistics W.H. Freedman NY
- De Vaus D.A. 1995 Surveys in Social Research Allen & Unwin Sydney NSW 1995
- Foddy W. 1994 Constructing Questions for Interviews and Questionnaires Cambridge University Press Cambridge.
- Scarbrough E.E. Tanernbaum 1998 Research Strategies in the Social Sciences Oxford University Press Oxford.

Maximum Time : 3 Hrs.
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Section: A

Introduction to Risk Evaluation: Definition of Risk and Fundamentals of Risk Analysis, Environmental Hazards, Exposure and Risk Assessment, Risk Evaluation and Management, Basic methodology in Risk Assessment, hazard Identification, Dose Response Assessment , Exposure Assessment, and Risk Characterization.

Section: B

The Assessment for Different Disaster Types , The Extreme Event Analysis, Hazard Ecology, Chemical Load and Environmental Health Risk, Carcinogenic Materials and Environment, Impact on Immune, Reproduction and Nervous System , Risk Adjustment, Choice and Loss Acceptance, Spectacular Deaths and Carcinogens.

Section : C

The Collection of Data and Information , Quantified Risk Assessment for Industrial Accidents, Release of Toxics Products, Dispersion Analysis and HAZOP Study, Risk Assessment Applications for Disaster Mitigation and management Problems.

Section : D

Design of Risk Management Program, Methodology of Stocktaking, Concept of Vulnerability and Analysis, Exposure, Preparedness, Prevention and Response Analysis.

Reference:

- Freeman , H.M. (ed) 1989 Standard handbook of hazardous Waste Treatment and Disposal McGraw, H HY.
- William, P.L. and J.L. Burson, 1985 Industrial Toxicology Safety and Health Applications in the Work Place, Van Nostrand Reinhold, NY.
- Willson, R. and E.A. C.Crouch, 1987 Risk Assessment and comparisons; An Introduction Science 17, 1987, pp 267-270.
- Petak , W.J. and Atkisson A.A. Natural Hazard Risk Assessment and Public Policy; Anticipating and Unexpected, Springer, NY 1982

Maximum Time : 3 Hrs.
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Minimum Pass Marks : 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

A) Instructions for paper-setter

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2. Use of non-programmable scientific calculator is allowed.

Section: A

Introduction to EIA: Purpose of EIA, Environmental Components, Projects and its Environmental Impacts, Environmental Impact Statement, Projects Screening and Scoping Environmental Baseline Study.

Section: B

Impact Assessment Procedure: Applications of Matrices, networks and Overlay Maps, Environmental Evaluation System, Transnational Effects of Projects, Impact Identification, Impact Prediction, Evaluation and Mitigation, Monitoring and Environmental Auditing, Regional and Strategic EIA, Environmental management Plan, Cost Benefit Analysis and its Dimensions, Problems of EIA in developing Countries, Public Participation in Environmental Decision Making, presentation and review, EIA Report and Its Contents.

Section: C

GIS in Disaster Management; GIS as Effective Tool in Disaster Management and Planning , Response Requirement Study, Alternate Route for Sending Relief and Shortest Evacuation Routes. Display and Identification of Damaged and Unsafe Structures Map Creation for Action Plan Identification of Risk and Planning Needs.

Section: D

Case Studies; River Valley Projects Opencast Mining Projects, Urbanization and High Way Project.

Reference:

- John Glasson , Riki Therivel and Andrew Chadwick Introduction to Environmental Impact Assessment, 2nd Ed. UCL Press Philadelphia, USA 1994
- Singh , R.B. Space Technology for Disaster Monitoring and Mitigation on India, INCEDE, University of Tokyo
- Larry W. Canter Environmental Impact Assessment , 2nd Ed McGraw Hill NY, 1996
- Richard K. Morgan Environmental Impact Assessment: A Methodological Perspective, Kluwar Academic Publications, Boston, 1998.