

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2013.

M.Sc. (DISASTER MANAGEMENT)

COURSE CODE : 379

Register Number :

*Signature of the Invigilator
(with date)*

COURSE CODE : 379

Time : 2 Hours

Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you -1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. Which of the following group of countries is most famous for exporting wool and meat?
 (A) Australia, Sri Lanka, Indonesia,
 (B) Argentina, France, Chile,
 (C) Australia, Argentina, New Zealand
 (D) New Zealand, Argentina, Italy
2. Which of the following soils is most suitable for the cultivation of cotton in India?
 (A) Red soil (B) Laterite soil (C) Alluvial soil (D) Regur soil
3. Which of the following state groups is the largest producer of iron-ore in India?
 (A) Orissa, Madhya Pradesh, Bihar
 (B) Madhya Pradesh, Maharashtra, Punjab
 (C) Maharashtra, Orissa, Andhra Pradesh
 (D) Bihar, W. Bengal, Orissa
4. Which of the following landforms is different from other three on the basis of the mode of origin?
 (A) Fold (B) Anticline (C) Nappes (D) Rift Valley
5. Which of the following landform is not associated with glaciation?
 (A) Hanging valley (B) Moraines (C) Inselberg (D) Drumlin
6. Which of the following order is given to the planets of solar system on the basis of their size?
 (A) Saturn, Jupiter, Mercury, Neptune
 (B) Jupiter, Saturn, Neptune, Mercury.,
 (C) Jupiter, Mercury, Neptune, Saturn
 (D) Neptune, Mercury, Saturn, Jupiter
7. As we go higher into the atmosphere, the air becomes—
 (A) Thinner, (B) Denser, (C) Warmer, (D) Visible
8. From which of the following longitude the Indian standard time is determined?
 (A) 82° 30' East, (B) 80° West, (C) 90° East, (D) 81° 30' East
9. Which of the following oceans are connected by Panama Canal?
 (A) Pacific and Atlantic, (B) Atlantic and Indian Ocean,
 (C) Indian Ocean and Pacific (D) Atlantic and North Ocean

10. For which crop production is 'Saopalo' famous?
 (A) Cotton, (B) Maize, (C) Coffee, (D) Tea
11. What would result if the sedimentary deposit of the Ganga Plain is compressed between the Himalayas and the Deccan Plateau and then uplifted?
 (A) Block mountain, (B) Fold mountain,
 (C) Rift valley, (D) Volcanic plateau
12. What would happen to ocean water if the moon comes nearer to the earth?
 (A) Fall of temperature, (B) Stopping of ocean currents,
 (C) Rise of sea level, (D) Increase in height oceanic tides
13. The line joining places of equal atmospheric pressure is termed—
 (A) Contour, (B) Isohyet, (C) Isotherm, (D) Isobar
14. What would happen to types of rainfall if the earth's surface becomes all plain?
 (A) No cyclonic rainfall, (B) No orographic rainfall,
 (C) No convectional rainfall, (D) No frontal rainfall
15. The maximum risk to air travel is from—
 (A) Clouds, (B) Rainfall, (C) Fogs, (D) Strong winds
16. Which one of the following countries is the largest producer of rice in the world?
 (A) China, (B) Japan, (C) Philippines, (D) Bangladesh
17. Which of the following countries possesses a strong natural resource base for iron and steel industry?
 (A) Russia, (B) Pakistan, (C) Japan, (D) Bangladesh
18. The present day search for fuels alternative to petroleum, is due mainly to
 (A) Iran-Iraq war,
 (B) Strained relations between Israel and Middle East countries
 (C) Highly increased cost of petroleum,
 (D) Increase in the consumption of petroleum
19. What is the population density of a District which has 50 Lakh people and 25 thousand square kilometres area?
 (A) 50 persons per sq. km., (B) 100 persons per sq. km.,
 (C) 150 persons per sq. km. (D) 200 persons per sq. km.

20. The Savana type of climate is characterized by
 (A) Humid summers and dry winters, (B) Humid winters and dry summers
 (C) Humid throughout the year (D) None
21. What should India increase in order to become one of the most prosperous countries of the world?
 (A) Food production, (B) Industrial production,
 (C) Population, (D) Trade
22. Which of the following regions has almost prevalent types of natural vegetation in India?
 (A) The Himalaya mountain, (B) The Deccan Plateau,
 (C) The Ganga plain, (D) The Coastal plains
23. For which of the following manufacturing industries does India have the most natural resources?
 (A) Glass Synthetic rubber, (B) Synthetic rubber,
 (C) Iron and Steel, (D) Aluminium
24. One of the characteristics of India's population is lesser number of women compared to men. Which one of the following explains this phenomenon?
 (A) Excess males at birth,
 (B) Lower social status of women,
 (C) Neglect of females in childhood
 (D) High maternity mortality
25. Earthquake waves are recorded in
 (A) Barograph, (B) Hydrograph, (C) Seismograph, (D) Pantagraph
26. Which of these is young folded mountain?
 (A) The Himalayas, (B) The Vindhya,
 (C) The Nilgiris, (D) The Western Ghats
27. Ankaleshwar is famous for
 (A) Gold mining, (B) Petrochemical Industry,
 (C) Manufacturing Industry, (D) Wheat producton

28. Felspar is the most abundant mineral of the earth's crust weather by
- (A) Physical weathering, (B) Hydrolysis,
(C) Exfoliation, (D) Dissolution
29. The average inclination of the continental shelf is about
- (A) 0.1° (B) 0.5°
(C) 1.0° (D) 4 to 5°
30. The Rock type sandstone is made up of
- (A) Quartz and feldspar,
(B) Quartz, feldspar and mica,
(C) Campacted Volcanic ash
(D) Feldspar ,mica, pyroxenes and olivine
31. Which of the following is used for dating and correlation in Magnetostratigraphy?
- (A) Field intensity, (B) Polarity reversal,
(C) Normal polarity, (D) Secular variation
32. A volcano which is composed of lava flow sand pyroclastic material and which is steep-sided and very tall is known as:
- (A) Syncline, (B) Composite cone
(C) Anticline (D) None of these
33. The solidified lava of a volcano belongs to which rock family? Is it:
- (A) igneous, (B) metamorphic,
(C) sedimentary, (D) fossilized
34. In geological studies,a dome shaped intrusion is called a:
- (A) volcanic neck, (B) laccolith
(C) nueeardente (D) calder
35. Iceland has a great deal of volcanic activity. The reason for this is:
- (A) it was formed above a mid-ocean rift.
(B) it is part of the "Ring of Fire".
(C) Two tectonic plates are rubbing against each other under Iceland.
(D) The American plate is diving under the European plate in this region.

36. Of the following, the rock that is most resistant to both chemical and mechanical weathering is
 (A) shale (B) limestone (C) marble (D) quartzite
37. What percentage of the earth's atmosphere does O₂ comprise?
 (A) 75% (B) 50% (C) 21% (D) 32%
38. The tanning rays of the sun are called:
 (A) infrared rays (B) visible light
 (C) ultraviolet rays (D) gamma rays
39. What is the relative humidity when the absolute humidity is 3 grams per cubic meter and the air has a capacity of 12 grams per cubic meter?
 (A) 4% (B) 9% (C) 25% (D) 400%
40. Which one of the following minerals does NOT contain silica tetrahedrons?
 (A) quartz (B) muscovite (C) halite (D) orthoclase
41. In geological studies, arkose contains which of the following minerals which gives it a reddish color?
 (A) Orthoclase (B) calcite (C) aragonite (D) quartz
42. Which of the following minerals is noted for its one perfect cleavage?
 (A) calcite (B) muscovite (C) quartz (D) pyrite
43. Which of the following gases is given off in the acid test of a carbonate mineral?
 (A) Chlorine (B) nitrogen (C) carbon dioxide (D) sulfur dioxide
44. Fine parallel lines, or striations, are most likely to be seen on a cleavage surface of which of the following minerals?
 (A) quartz (B) orthoclase (C) hornblende (D) plagioclase
45. Which of the following minerals is NOT a silicate?
 (A) orthoclase (B) muscovite (C) augite (D) magnetite
46. Which of the following pairs contain one igneous and one sedimentary rock?
 (A) shale and marble (B) sandstone and quartzite
 (C) granite and limestone (D) obsidian and gneiss
47. Which of the following pairs of minerals are always found in granites?
 (A) muscovite and calcite (B) quartz and orthoclase
 (C) hornblende and talc (D) augite and magnetite
48. An example of a rock whose minerals have been crushed in to thin sheets or bands is:
 (A) shale (B) schist (C) Conglomerate (D) granite

49. The hydrolysis of orthoclase results in the formation of:
 (A) shale (B) kaolin
 (C) lime (D) hydrochloric acid
50. Which of the following materials is the hardest?
 (A) calcite (B) silicon carbide (C) topaz (D) quartz
51. Igneous rocks that form from magma are known as:
 (A) minerals (B) granite (C) intrusive rocks (D) gneiss
52. The mineral halite is:
 (A) potassium chloride (B) sodium chloride
 (C) calcium chloride (D) calcium bromide
53. What is the name of the white clay which has been used for thousands of years in the fabrication of ceramic bodies? Is it:
 (A) Talc (B) Kaolin (C) Feldspar (D) Quartz
54. A 1000-kg car and a 2000-kg car are hoisted the same distance in a gas station. Raising the more massive car requires
 (A) less work., (B) as much work.
 (C) twice as much work. (D) four times as much work.
55. An object that has kinetic energy must be
 (A) moving. (B) falling.
 (C) at an elevated position. (D) at rest.
56. An object that has potential energy may have this energy because of its
 (a) speed. (B) acceleration. (C) momentum. (D) location.
57. Bullets are fired from an airplane in the forward direction of motion. The momentum of the airplane will be
 (A) decreased. (B) unchanged. (C) increased. (D) none
58. A clerk can lift containers a vertical distance of 1 meter or can roll them up a 2 meter-long ramp to the same elevation. With the ramp, the applied force required is about
 (A) half as much, (B) twice as much. (C) the same. (D) none
59. A bow is drawn so that it has 40 J of potential energy. When fired, the arrow will ideally have a kinetic energy of
 (A) less than 40 J. (B) more than 40 J. (C) 40 J. (D) 20 J
60. When a car is braked to a stop, its kinetic energy is transformed to
 (A) stopping energy. (B) potential energy.
 (C) energy of motion. (D) heat

61. No work is done by gravity on a bowling ball that rolls along a bowling alley because
- (A) no force acts on the ball.
 - (B) no distance is covered by the ball.
 - (C) the force on the ball is at right angles to the ball's motion.
 - (D) no potential energy is being converted to kinetic energy.
62. Which requires more work: lifting a 50-kg sack vertically 2 meters or lifting a 25-kg sack vertically 4 meters?
- (A) lifting the 50-kg sack ,
 - (B) lifting the 25-kg sack ,
 - (C) Both require the same amount of work.
 - (D) none
63. A 50-kg sack is lifted 2 meters in the same time as a 25-kg sack is lifted 4 meters. The power expended in raising the 50-kg sack compared to the power used to lift the 25-kg sack is
- (A) twice as much., (B) half as much. (C) the same. (D) none
64. A TV set is pushed a distance of 2 m with a force of 20 N that is in the same direction as the set moves. How much work is done on the set?
- (A) 2 J, (B) 10 J, (C) 20 J, (D) 40 J
65. One end of a long, uniform log is raised to shoulder level. Another identical log is raised at its center to the same level. Raising the second log requires about
- (A) the same amount of work. (B) twice as much work.
 - (C) more than twice as much work. (D) Less than twice
66. Two identical arrows, one with twice the kinetic energy of the other, are fired into a hay bale. The faster arrow will penetrate
- (A) the same distance as the slower arrow.
 - (B) twice as far as the slower arrow.
 - (C) four times as far as the slower arrow.
 - (D) more than four times as far as the slower arrow.
67. A car moves 4 times as fast as another identical car. Compared to the slower car, the faster car has
- (A) 4 times the KE. (B) 8 times the KE.
 - (C) 12 times the KE. (D) 16 times the KE.

68. A ball is projected into the air with 100 J of kinetic energy which is transformed to gravitational potential energy at the top of its trajectory. When it returns to its original level after encountering air resistance, its kinetic energy is
- (A) less than 100 J. (B) more than 100 J.
(C) 100 J. (D) not enough information given.
69. Strictly speaking, if any electrical device in your car is turned on (such as an air conditioner, headlights, or even a radio) more gasoline is burned by the engine. This statement is
- (A) totally false.
(B) true only if the car's engine is running.
(C) true only if the car's engine is stopped.
(D) almost always true.
70. If an object has kinetic energy, then it also must have
- (A) impulse. (B) momentum. (C) acceleration. (D) force.
71. If the speed of a moving object doubles, then what else doubles?
- (A) momentum, (B) kinetic energy, (C) acceleration, (D) all of these
72. An object at rest may have
- (A) speed. (B) velocity. (C) energy. (D) momentum.
73. A feather and a coin dropped in a vacuum fall with equal
- (A) forces. (B) momenta.
(C) accelerations. (D) kinetic energies.
74. $2\text{HI}(\text{g}) \rightleftharpoons \text{H}_2(\text{g}) + \text{I}_2(\text{g})$ The equilibrium constant of the above reaction is 6.4 at 300 K. If 0.25 mole each of H_2 and I_2 are added to the system, the equilibrium constant will be
- (A) 3.2, (B) 1.6, (C) 6.4, (D) 0.8
75. $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g})$ is an example for
- (A) irreversible reaction, (B) heterogenous catalysis,
(C) homogenous catalysis; (D) neutralisation reaction
76. 30 cc of HCl , 20 cc of 5 HNO_3 and 40 cc of NaOH solutions are mixed and the volume was made up to 1 dm^3 . The pH of the resulting solution is
- (A) 1, (B) 3, (C) 8, (D) 2

77. 5 moles of SO_2 and 5 moles of O_2 are allowed to react. At equilibrium, it was found that 60% of SO_2 is used up. If the partial pressure of the equilibrium mixture is one atmosphere. the partial pressure of O_2 is
- (A) 0.21 atm, (B) 0.41 atm, (C) 0.82 atm, (D) 0.52 atm
78. 50 cm^3 of 0.2 N HCl is titrated against 0.1 N NaOH solution. The titration is discontinued after adding 50 cm^3 of NaOH. The remaining titration is completed by adding 0.5 N KOH. The volume of KOH required for completing the titration is
- (A) 10 cm^3 , (B) 12 cm^3 , (C) 10.5 cm^3 , (D) 25 cm^3
79. Which one of these is NOT TRUE for benzene?
- (A) It forms only one type of mono substituted product
- (B) There are three carbon-carbon single bonds and three carbon-carbon double bonds
- (C) Heat of hydrogenation of benzene is less than the theoretical value
- (D) The bond angle between carbon-carbon bonds is 120°
80. Which one of the following is paramagnetic?
- (A) N_2 , (B) NO, (C) CO, (D) O_3
81. Which one of the following is a covalent crystal?
- (A) Ice, (B) Rock salt, (C) Dry ice, (D) Quartz
82. Which one of the following DOES NOT involve coagulation?
- (A) Formation of delta region ,
- (B) Clotting of blood by the use of ferric chloride ,
- (C) Peptization
- (D) Treatment of drinking water by potash alum
83. Which one is not a constituent of nucleic acid?
- (A) Uracil, (B) Guanidine, (C) Phosphoric acid (D) Ribose sugar
84. A body of mass 10 mg is moving with a velocity of 100 ms^{-1} . The wavelength of de-Broglie wave associated with it would be
- (Note : $h = 6.63 \times 10^{-34} \text{ Js}$)
- (A) $6.63 \times 10^{-37} \text{ m}$, (B) $6.63 \times 10^{-31} \text{ m}$,
- (C) $6.63 \times 10^{-34} \text{ m}$, (D) $6.63 \times 10^{-35} \text{ m}$

85. A body of mass x kg is moving with a velocity of 100 ms^{-1} . Its de Broglie wavelength is $6.62 \times 10^{-35} \text{ m}$. Hence x is ($h = 6.62 \times 10^{-34} \text{ Js}$)
- (A) 0.15 kg, (B) 0.2 kg, (C) 0.1 kg, (D) 0.25 kg
86. A buffer solution contains 0.1 mole of sodium acetate dissolved in 1000 cm^3 of 0.1 M acetic acid. To the above buffer solution, 0.1 mole of sodium acetate is further added and dissolved. The pH of the resulting buffer is equal to _____.
- (A) pK_a , (B) $\text{pK}_a - \text{Log}2$, (C) $\text{pK}_a + \text{Log}2$, (D) $\text{pK}_a + 2$
87. A buffer solution is prepared in which the concentration of NH_3 is 0.30 M and the concentration of NH_4^+ is 0.20 M. If the equilibrium constant, K_b for NH_3 equals 1.8×10^{-5} , what is the pH of this solution?
- (A) 8.73, (B) 9.08, (C) 9.43, (D) 11.72
88. A complex compound in which the oxidation number of a metal is zero is
- (A) $\text{K}_4 [\text{Fe} (\text{CN})_6]$, (B) $\text{K}_3 [\text{Fe} (\text{CN})_6]$,
 (C) $[\text{Ni} (\text{CO})_4]$ (D) $[\text{Pt} (\text{NH}_3)_4] \text{Cl}_2$
89. Which of the following is used to prepare Cl_2 gas at room temperature from concentrated HCl ?
- (A) MnO_2 , (B) H_2S , (C) KMnO_4 , (D) Cr_2O_3
90. Which of the following is not an ore of magnesium?
- (A) Carnallite, (B) Dolomite, (C) Calamine (D) Sea water
91. Which of the following has the highest bond order?
- (A) N_2 , (B) O_2 , (C) He_2 , (D) H_2
92. Which of the following gives an aldehyde on dry distillation?
- (A) Calcium acetate + calcium benzoate, (B) Calcium formate + calcium acetate,
 (C) Calcium benzoate, (D) Calcium acetate
93. Which of the following does not give benzoic acid on hydrolysis?
- (A) phenyl cyanide, (B) benzoyl chloride,
 (C) benzyl chloride, (D) methyl benzoate

94. 80 g of oxygen contains as many atoms as in
(A) 80 g of hydrogen, (B) 1 g of hydrogen,
(C) 10 g of hydrogen, (D) 5 g of hydrogen
95. 65 C of electric current is passed through fused anhydrous magnesium chloride. The magnesium metal thus obtained is completely converted into a Grignard reagent. The number of moles of the Grignard reagent obtained is _____.
(A) 1×10^{-4} , (B) 5×10^{-4} , (C) 1×10^{-5} , (D) 5×10^{-5}
96. A 6% solution of urea is isotonic with
(A) 6% solution of Glucose, (B) 25% solution of Glucose,
(C) 1 M solution of Glucose, (D) 0.05 M solution of Glucose
97. A bivalent metal has an equivalent mass of 32. The molecular mass of the metal nitrate is
(A) 192, (B) 188, (C) 182, (D) 168
98. A compound of 'A' and 'B' crystallises in a cubic lattice in which the 'A' atoms occupy the lattice points at the corners of the cube. The 'B' atoms occupy the centre of each face of the cube. The probable empirical formula of the compound is
(A) AB_2 , (B) AB_3 , (C) AB_2 , (D) A_3B
99. A covalent molecule AB_3 has pyramidal structure. The number of lone pair and bond pair electrons in the molecule are respectively
(A) 3 and 1, (B) 1 and 3, (C) 2 and 2, (D) 0 and 4
100. A diabetic person carries a pocket of Glucose with him always, because
(A) Glucose reduces the blood sugar level.
(B) Glucose increases the blood sugar level almost instantaneously.
(C) Glucose reduces the blood sugar level slowly.
(D) Glucose increases the blood sugar level slowly.