

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2011.

Ph.D. (COASTAL DISASTER MANAGEMENT)

COURSE CODE : 147

Register Number :

*Signature of the Invigilator
(with date)*

COURSE CODE : 147

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) or (E) 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. The present ages of three persons are in proportions 4 : 7 : 9. Eight years ago, the sum of their ages was 56. Find their present ages (in years)
(A) 20, 35, 45 (B) 8, 20, 28
(C) 16, 28, 36 (D) 20, 36, 46
2. In 10 years, A will be twice as old as B was 10 years ago. If A is now 9 years older than B, the present age of B is
(A) 29 years (B) 19 years
(C) 49 years (D) 39 years
3. The ratio of the speeds of two trains is 7 : 8. If the second train runs 400 kms in 4 hours, then the speed of the first train is
(A) 70 km/hr (B) 75 km/hr
(C) 84 km/hr (D) 87.5 km/hr
4. In a camp, 95 men had provisions for 200 days. After 5 days, 30 men left the camp. For how many days will the remaining food last now?
(A) 180 (B) 285
(C) $139 \frac{16}{19}$ (D) 28.5
5. A vendor loses the selling price of 4 oranges on selling 36 oranges. Her loss per cent is
(A) 10% (B) $11 \frac{1}{9} \%$
(C) $12 \frac{1}{2} \%$ (D) None of the above
6. At what time between 9 and 10 o'clock will the hands of a watch be together?
(A) 45 min past 9 (B) 50 min past 9
(C) $49 \frac{1}{11}$ min past 9 (D) $48 \frac{2}{11}$ min past 9
7. What is the smallest number by which 3600 be divided to make it a perfect cube?
(A) 9 (B) 450
(C) 50 (D) 300
8. A two-digit number is such that the product of the digits is 8. When 18 is added to the number, then the number is reversed. The number is
(A) 18 (B) 42
(C) 81 (D) 24

9. The edges of a cuboid are in the ratio 1 : 2 : 3 and its surface area is 88 cm^2 . The volume of the cuboid is
- (A) 24 cm^3 (B) 48 cm^3
(C) 64 cm^3 (D) 120 cm^3
10. In a school 10% of the boys are same in number as $\frac{1}{4}$ th of the girls. What is the ratio of boys to girls in the school?
- (A) 3 : 2 (B) 5 : 2
(C) 2 : 1 (D) 4 : 3
11. Which of the following is the lightest metal?
- (A) Mercury (B) Silver
(C) Lithium (D) Lead
12. The most important ore of Aluminum is
- (A) Bauxite (B) Calamine
(C) Calcite (D) Galena
13. The element present in the largest amount in rocks and minerals is
- (A) Carbon (B) Silicon
(C) Hydrogen (D) Aluminium
14. An alloy used in making heating elements for electric heating devices is
- (A) Solder (B) Alloy steel
(C) Nichrome (D) German Silver
15. German Silver is an alloy of
- (A) Copper, Silver & Nickel (B) Silver, Copper & Aluminium
(C) Zinc, Copper & Nickel (D) Silver, Zinc & Nickel
16. Air is a/an
- (A) Compound (B) Element
(C) Mixture (D) Electrolyte
17. Which of the following is the best conductor of Electricity?
- (A) Ordinary water (B) Sea water
(C) Boiled water (D) Distilled water

18. Balloons are filled with
(A) Helium (B) Oxygen
(C) Nitrogen (D) Argon
19. The charcoal used to decolourise raw sugar is
(A) Animal charcoal (B) Sugar charcoal
(C) Coconut charcoal (D) Wood charcoal
20. The most abundant metal in the earth's crust is
(A) Zinc (B) Copper
(C) Aluminium (D) Iron
21. Stem is modified into cladode
(A) Casuarina (B) Asparagus
(C) Opuntia (D) Euphorbia
22. Verticillaster type of inflorescence is found in
(A) Cotton (B) Datura
(C) Liliium (D) Ocimum
23. A simple one seeded fruit in which pericarp is fused with seed coat is
(A) Achene (B) Caryopsis
(C) Cypsela (D) Nut
24. The portion of DNA which contains information for an entire polypeptide is called
(A) Cistron (B) Muton
(C) Recon (D) Operon
25. Bicarpellary, syncarpous ovary with axile placentation is seen in
(A) Solanaceae (B) Caesalpinaceae
(C) Asteraceae (D) Malvaceae
26. Alburnum is also called
(A) Autumn wood (B) Heart wood
(C) Sap wood (D) Spring wood

27. The entry of pollen tube into the ovule through micropyle is called
 (A) Porogamy (B) Mesogamy
 (C) Anisogamy (D) Chalazogamy
28. Type of pollination in Commelina is
 (A) Chasmogamy (B) Geitonogamy
 (C) Xenogamy (D) Cleistogamy
29. The process of embryo formation without fertilization is known as
 (A) Apospory (B) Apogamy
 (C) Parthenocarpy (D) Polyembryony
30. Which of the process Cholodny-Went theory is concerned with?
 (A) Photomorphogenesis (B) Photoperiodism
 (C) Phototropism (D) Photorespiration
31. A Compiler is
 (A) a combination of computer hardware
 (B) a program which translates from one high-level language to another
 (C) a program which translates from one high-level to a machine level
 (D) none of these
32. When a key is pressed on the keyboard, which standard is used for converting the keystroke into the corresponding bits
 (A) ANSI (B) ASCII
 (C) EBCDIC (D) ISO
33. A Pixel is
 (A) A computer program that draws picture
 (B) A picture stored in secondary memory
 (C) The smallest resolvable part of a picture
 (D) None of these
34. Which device is used as the standard pointing device in a Graphical User Environment?
 (A) Keyboard (B) Mouse
 (C) Joystick (D) Track ball

35. Which number system is usually followed in a typical 32-bit computer?
(A) 2 (B) 10 z
(C) 16 (D) 32
36. Which of the following is not an output device?
(A) Scanner (B) Printer
(C) Flat Screen (D) Touch Screen
37. Which of the following devices have a limitation that we can only information to it but cannot erase or modify it?
(A) Floppy Disk (B) Hard Disk
(C) Tape Drive (D) CDROM
38. Which technology is used in Compact disks?
(A) Mechanical (B) Electrical
(C) Electro Magnetic (D) Laser
39. Which of the following storage devices can store maximum amount of data?
(A) Floppy Disk (B) Hard Disk
(C) Compact Disk (D) Magneto Optic
40. Which of the following is the largest manufacturer of Hard Disk Drives?
(A) IBM (B) Segate
(C) Microsoft (D) 3M

Directions - (Q. 41-50) : Read the following passage carefully and answer the questions given below it. Certain words/phrases are given in **bold** to help you to locate them while answering some of the questions.

Aviation is an essential link for travel, trade and connectivity. While full service carriers attract passengers with the overall quality of their services, low cost airlines compete on cost. They offer bare-bone services, fly more sectors a day and operate from smaller secondary airports that have lower charges. These may be very far from the city centres costing passengers more time and money to get into town. Some services like London's Luton are aimed at eliminating the problems of connecting flights. They tend to avoid head-on competition with each other and prey on full services airlines. Staff are usually less well paid, more **intensively** used and in shorter supply as compared to full service airlines. There are numerous exceptions though in other countries. Easy Jet operates from major airports and Jet Blue offers live programmes for free.

In India 70% of the operating costs of low cost airlines are the same as that of full service carriers, leaving just 30% to juggle with to gain an overall advantage over full service carriers. Many of these costs like fuel are above global levels. Exorbitant State and Central government taxes and duties are the main culprits. Air Deccan envisions that their airline fares will match rail fares—unattainable because of the economies of scale that the railways enjoy. Few secondary airports and fares falling faster than their costs have hurt low cost airlines more than others, as they have to achieve higher fleet utilization. Allowing low cost airlines to utilize non-metro airports at lower charges during off-peak hours while providing full service airlines peak hour slots but at higher rates could help.

Low cost airlines can aid economic development and the current economic boom has been the right time to launch India's low cost revolution though in their efforts to achieve economies of scale and greater market share they have been reckless and have gone deep into the red. India has to await second-generation low cost airlines to deliver the goods.

41. The primary purpose of low cost airlines is to
- (A) provide connectivity at low rates
 - (B) enhance economic development
 - (C) do away with the inconvenience of connecting flights
 - (D) reduce congestion at crowded city airports
 - (E) reduce the passenger pressure on the railways
42. The author's view of Indian low cost airlines is that
- (A) they are based on global models allowing them to compete with railways
 - (B) they benefit from certain exemptions on tax and duties
 - (C) with only 70% of the operating cost being the same as full service airlines they have a major advantage
 - (D) they are loss-making enterprises as their efforts to expand have been hasty
43. Which of the following is/are **TRUE** in the context of the passage?
- 1. Indian low cost carriers though launched at the right time have been mismanaged.
 - 2. Jet Blue is one of the premier full service air carriers in the world.
 - 3. Business for low cost carriers is good enough to allow them to compete with railways.
- (A) Only 1
 - (B) Both 1 and 3
 - (C) Only 2
 - (D) Both 2 and 3
 - (E) None of these

44. Which of the following measures can boost the low cost carrier business?
- (A) Increasing rail fares to allow low cost carriers a chance to compete
 - (B) Government should own a stake in low cost airlines
 - (C) Preference for low cost carriers during peak hours at major airports
 - (D) Developing adequate secondary airports
 - (E) Equivalent charges for full services and low cost airlines at metro airports
45. The growth of low cost airlines in India has been hampered by
1. inadequate airport infrastructure.
 2. attracting and retaining staff in spite of higher pay packages.
 3. costs of providing additional quality services.
- (A) Only 3
 - (B) Both 1 and 2
 - (C) Only 1
 - (D) Both 2 and 3
 - (E) All 1, 2 and 3
46. Which of the following is **NOT TRUE** in the context of the passage?
- (A) The low cost airline industry has very recently come to India
 - (B) Full service airlines operate from secondary airports to meet the costs of free services
 - (C) Indian low cost airlines have not been able to make even a marginal profit
 - (D) Staff of low cost airlines has longer working hours as compared to full service airline
 - (E) None of these
47. A benefit of low cost airlines is
- (A) they operate away from crowded cities
 - (B) their fares are more reasonable than rail fares
 - (C) decrease in fares despite a rise in costs
 - (D) efficient bare minimum services at affordable rates
 - (E) utilizing secondary airports despite their higher charges
48. Why are low cost airline India currently experiencing difficulties?
- (A) Over ambitious plans for expansion
 - (B) Recession in global airline industry
 - (C) Monopoly of govt. owned full service airlines
 - (D) Lack of favourable economic conditions
 - (E) None of these

49. Choose the word/phrase which is **most nearly the same in meaning** as the word intensively used in the passage.
- (A) Severely (B) Excessively
(C) Powerfully (D) Strongly
(E) Harshly
50. Choose the word/phrase which is the **most opposite in meaning** to the word Aid as used in the passage.
- (A) Ignore (B) Disregard
(C) Protect (D) Obstruct
(E) Conceal
51. Which of the following rocks is different from the remaining three on the basis of its mode of origin?
- (A) Limestone (B) Sandstone
(C) Shale (D) Marble
52. Which of the following land forms is **not** associated with river erosion?
- (A) Waterfall (B) V-shaped valley
(C) Moraines (D) Ox-bow lake
53. Which of the following latitudes is the longest?
- (A) 23°N (B) 66°N
(C) 0° (D) 80°N
54. Two places on the same meridian must have the same
- (A) Length of summer (B) Length of winter
(C) Latitude (D) Solar time
55. Which of the following processes helps in the formation of rift valley?
- (A) Seismism (B) Faulting
(C) Folding (D) Volcanism
56. Which of the following names is given to the planetary winds blowing between the tropics?
- (A) Monsoon (B) Polar winds
(C) Westerlies (D) Trade winds

57. Where is Dead Sea situated in the following continents?
(A) Europe (B) Australia
(C) Asia (D) Africa
58. 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
59. 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
60. As we go higher into the atmosphere, the air becomes
(A) Thinner (B) Denser
(C) Warmer (D) Visible
61. Natural disaster is
(A) Bomb blast (B) Earth quake
(C) Terrorism (D) Malaria
62. Petrology is the study of
(A) Oil (B) Mountain
(C) Glacier (D) Rock
63. Palaeontology is used to study
(A) River pattern (B) Mountain
(C) Palaeo-climate (D) Fossils
64. Sedimentary rocks are formed by
(A) Erosion and deposition (B) Tectonic movement
(C) Metamorphic activity (D) Volcanic eruption
65. Seismograph is a instrument to identify
(A) Landslide (B) Mudflow
(C) Earthquake (D) Tsunami

66. Faults are formed by
 (A) Pressure (B) Temperature
 (C) Explosion (D) Tectonic activity
67. Epicentre is
 (A) Centre of the earth (B) Centre of the moon
 (C) Centre of mars (D) Centre above the earth quake
68. Richter's scale is used to measure
 (A) Earth quake (B) Distance
 (C) Height (D) Sea depth
69. Aeolian formation is formed by
 (A) Wind (B) Water
 (C) Glacial (D) Ground water
70. Core of the earth is made up of
 (A) Sial (B) Sima
 (C) Nickel and Iron (D) Pyroxene
71. Hydrogeology is the study of
 (A) Surface water flow (B) Sea water intrusion
 (C) Ground water (D) Rain water
72. Anticlinal fold is in
 (A) Concave shape (B) Convex shape
 (C) Circular shape (D) Oval shape
73. Delta is found in the Ocean in the mouth of
 (A) Ocean (B) River
 (C) Reservoir (D) Pond
74. Which is the most prominent rock in the earth crust?
 (A) Sedimentary rock (B) Igneous rock
 (C) Metamorphic rock (D) Igneous and metamorphic rock

75. Himalaya is a
- (A) Folded mountain chain (B) Hard compact rock
(C) Erosional relick mountain (D) Glacial deposits
76. The order of planets in solar system from Sun are
- (A) Jupiter, Saturn, Uranus, Neptune, Pluto, Mercury, Venus, Earth and Mars
(B) Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto
(C) Neptune, Pluto, Mercury, Venus, Earth, Mars, Jupiter, Saturn and Uranus
(D) Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, Mercury, Venus and Earth
77. Geophysics is a study of
- (A) Physics of earth (B) History of earth
(C) Geographical distribution of earth (D) None of the above
78. Stratigraphy is the
- (A) Study of the stratum of earth (B) Study of fossils
(C) Study of birds (D) All the above
79. Karst topography is formed in
- (A) Limestone (B) Sandstone
(C) Charnockite (D) None of the above
80. Oxbow lake is formed at the
- (A) Youthful stage (B) Mature stage
(C) Youthful and mature stage (D) None of the above
81. A material 'B' has twice the specific resistance of 'A'. A circular wire made of 'B' has twice the diameter of a wire made of 'A'. Then for the two wires to have the same resistance, the ratio A / B of their respective lengths must be
- (A) 2 (B) 1/2
(C) 4 (D) 1/3
82. In a region, steady and uniform electric and magnetic fields are present. These two fields are parallel to each other. A charged particle is released from rest in this region. The path of the particle will be a
- (A) circle (B) helix
(C) straight line (D) ellipse

83. Needles N1, N2 and N3 are made of a ferromagnetic, a paramagnetic and a diamagnetic substance respectively. A magnet when brought close to them will
- (A) attract all three of them
 (B) attract N1 and N2 strongly but repel N3
 (C) attract N1 strongly, N2 weakly and repel N3 weakly
 (D) attract N1 strongly, but repel N2 and N3 weakly
84. A player caught a cricket ball of mass 150 g moving at a rate of 20 m/s. If the catching process is completed in 0.1 s, the force of the blow exerted by the ball on the hand of the player is equal to
- (A) 300 N (B) 150 N (C) 3 N (D) 30 N
85. A ball of mass 0.2 kg is thrown vertically upwards by applying a force by hand. If the hand moves 0.2 m which applying the force and the ball goes up to 2 m height further, find the magnitude of the force. Consider $g = 10 \text{ m/s}^2$
- (A) 22 N (B) 4 N (C) 16 N (D) 20 N
86. The maximum velocity of a particle, executing simple harmonic motion with an amplitude 7 mm, is 4.4 m/s. The period of oscillation is
- (A) 100 s (B) 0.01 s (C) 10 s (D) 0.1 s
87. A string is stretched between fixed points separated by 75 cm. It is observed to have resonant frequencies of 420 Hz and 315 Hz. There are no other resonant frequencies between these two. Then, the lowest resonant frequency for this string is
- (A) 10.5 Hz (B) 105 Hz (C) 1.05 Hz (D) 1050 Hz
88. The current I drawn from the 5 volt source will be
- (A) 0.17 A (B) 0.33 A (C) 0.5 A (D) 0.67 A
89. The resistance of a bulb filament is 100Ω at a temperature of 100°C . If its temperature coefficient of resistance be 0.005 per $^\circ\text{C}$, its resistance will become 200Ω at a temperature of
- (A) 200°C (B) 300°C (C) 400°C (D) 500°C
90. A thermocouple is made from two metals, Antimony and Bismuth. If one junction of the couple is kept hot and the other is kept cold then, an electric current will
- (A) flow from Antimony to Bismuth at the cold junction
 (B) flow from Antimony to Bismuth at the hot junction
 (C) flow from Bismuth to Antimony at the cold junction
 (D) not flow through the thermocouple

91. Ancestral amphibians were tetrapods that evolved during
(A) Devonian period (B) Carboniferous period
(C) Jurassic period (D) Cretaceous period
92. Community health services involves
(A) Control of communicable diseases (B) School and health education
(C) Awareness of clean environment (D) All the above
93. The wall of heart is made up of
(A) Epicardium (B) Myocardium
(C) Endocardium (D) All the above
94. A starving person consumes first
(A) Body fats (B) Body proteins
(C) Vitamins (D) Stored glycogen
95. The phenomenon of 'industrial melanism' demonstrates
(A) Natural selection (B) Induced mutation
(C) Reproductive isolation (D) Geographical isolation
96. The rate and force of the heart-beat, and the secretion of digestive glands are controlled by
(A) Central nervous system (B) Spinal nerves
(C) Cranial nerves (D) Autonomic nervous system
97. The 'soft spot' on the top of an infant's skull is called
(A) Suture (B) Fontanel (C) Ligament (D) Fascia
98. Concentration of carbonic acid does not increase in blood due to the presence of
(A) Na^+ (B) K^+ (C) Ca^{++} (D) Mg^{++}
99. Staph food poisoning is related with
(A) Salmonella bacteria (B) Clostridium bacteria
(C) Staphylococcus bacteria (D) None of these
100. Capacitation is
(A) Final stage in maturation of spermatozoa
(B) Final stage in fertilization
(C) Maturation of ovum
(D) All of these
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