OPENNET – V : Entrance Test for Diploma in Nautical Science leading to B.Sc. (Nautical Science) 2006

Total No. of Questions = 100

Time : 3 Hours

— All questions are compulsory.

— Use of calculator is ***not*** allowed. Rough work may be done in the space provided at the back of the Test booklet.

— The Test booklet has the following 5 tests :

Tests	No. of Questions	Marks
I – Reasoning Aptitude	20	20
II – General Knowledge	20	20
III – Mathematics	20	20
IV – English	20	20
V – General Science	20	20

Read the instructions given on the OMR Answer Sheet carefully before you start.

HOW TO FILL UP THE INFORMATION ON THE ENTRANCE TEST OMR ANSWER SHEET

While filling up the OMR Answer Sheet, you should follow the following guidelines :

1. Write your complete Roll Number. This should correspond to the roll number already supplied to you. Also write your correct name, address with pin code in the space provided, in ink. Put your signatures on the Answer Sheet with date, in ink. Ensure that the Invigilator in your examination hall also puts his signatures with date on the OMR Answer Sheet at the space provided. You should use HB pencil to mark the answers of the questions on the OMR Answer Sheet.

2. Do not make any stray marks on the OMR Answer Sheet.

3. Write correct information in numerical digits in Roll No., Programme Code, Date and Month and Examination Centre Code Columns. **The column of Course Code should be left blank**. The corresponding rectangle should be dark enough and should be filled in completely.

4. Each question is followed by four probable answers which are numbered 1, 2, 3 and 4. You should select and show only one answer to each question considered by you as the most appropriate or the correct answer. Select the most appropriate answer. Then by using HB pencil, blacken the rectangle bearing the correct answer number against the serial number of the question. **If you find that answer to any question is none of the four alternatives given under the question you should darken the rectangle '0'.**

5. If you wish to change your answer, ERASE completely the already darkened rectangle by using a good quality eraser and then blacken the rectangle bearing your revised answer number. If incorrect answer is not erased completely, smudges will be left on the erased rectangle and the question will be read as having two answers by the Optical Mark Reader (OMR) and will be ignored for giving any credit.

6. No credit will be given if more than one answer is given for one question. Therefore, you should select the most appropriate answer.

7. You should not spend too much time on any one question. If you find any particular question difficult, leave it and go to the next. If you have time left after answering all the questions, you may go back to the unanswered ones.

8. There is no negative marking for wrong answers.

GENERAL INSTRUCTIONS

1. Mobile Phones, calculators, books, slide-rules, foot rulers, note-books or written notes, etc. are not allowed inside the examination hall.

2. You should follow the instructions given by the Centre Superintendent, observers and by the Invigilators at the examination venue. If you violate the instructions you will be disqualified.

3. Any candidate found copying or receiving or giving assistance in the examination will be disqualified.

4. The Test Booklet and the OMR Answer Sheet would be supplied to you by the Invigilators. **After the exam is over, you should hand over the Test Booklet and the OMR Answer Sheet to the Invigilator before leaving the examination hall.** Any candidate who does not return the Question Booklet and the OMR Answer Sheet will be disqualified.

5. Candidates arriving late will not be permitted to enter the examination hall. The reporting time is 9.15 A.M. The examination will start at 10.00 A.M. and will be over at 1.00 P.M.

6. All rough work is to be done on the test booklet itself and not on any other paper. Scrap paper is not permitted. For arriving at answers you may work in the margins, make some markings or underline in the test booklet itself.

7. The University reserves the right to cancel scores of any candidate who impersonates or uses malpractices. The examination is conducted under uniform conditions. The University would also follow a procedure to verify the validity of scores of all examinees uniformly. If there is substantial indication that your performance is not genuine, the University may cancel your score.

TEST V

GENERAL SCIENCE

81. A girl standing on the ground throws a ball straight up with an initial velocity of 15 ms^{-1}. The maximum height reached by the ball is (Take g = 10 ms^{-2})

(1) 10·25 m (2) 11·25 m

(3) 12·25 m (4) 13·25 m

82. Which component(s) of the acceleration of a projectile remain(s) constant throughout its motion ?

(1) Horizontal

(2) Vertical

(3) Horizontal as well as vertical

(4) Neither horizontal nor vertical

83. The maximum frictional force between two given surfaces is independent of

(1) the normal force

(2) the horizontal force

(3) the contact area

(4) the weight of the upper surface

84. A boy runs on a circular track of radius 100 m at a speed of 8 ms^{-1}. The value of centripetal acceleration is

(1) 0·08 ms^{-2} (2) 0·8 ms^{-2}

(3) 6·4 ms^{-2} (4) 0·64 ms^{-2}

85. The total linear momentum of a system is conserved if the

(1) net external force is more than 1 N

(2) net external force is zero

(3) net external force is infinite

(4) net external force is non-zero but less than 1 N

86. One 1 μF capacitor is connected to a 12 V battery. The charge on its plate is

(1) $1·2 \times 10^{-5}$ C (2) $1·2 \times 10^{5}$ C

(3) $8·0 \times 10^{-8}$ C (4) $8·0 \times 10^{8}$ C

87. An electron is accelerated at 10^8 ms^{-2} by an electric field. The magnitude of electric field is

(1) $1·6 \times 10^{4}$ NC^{-1} (2) 9×10^{-4} NC^{-1}

(3) $5·6 \times 10^{-4}$ NC^{-1} (4) $5·6 \times 10^{4}$ NC^{-1}

88. A person weighing 65 kg climbs a flight of stairs 4 m high. The work done by the person against the gravitational force is

(1) 2548 J (2) 160 J

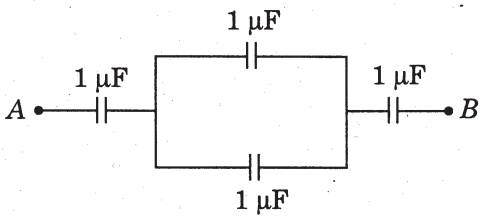
(3) 2468 J (4) 29·3 J

89. A moving body P of mass 5 kg collides with another stationary body Q. After collision, both the bodies move together with a speed one-third of the speed of body P. The mass of body Q is

(1) 5 kg (2) 10 kg

(3) 15 kg (4) 20 kg

90. In the figure given below, the equivalent capacitance between points A and B is



(1) 0·1 μF (2) 0·2 μF

(3) 0·3 μF (4) 0·4 μF

91. The number of orbitals corresponding to n = 3 and l = 2 is

(1) 1 (2) 2

(3) 3 (4) 5

92. Which of the following are present in aqua regia ?

(1) HNO_3 + HCl

(2) HNO_3 + H_2SO_4

(3) H_2SO_4 + HCl

(4) H_2SO_4 + SO_3

93. Which one of the following is ***not*** an ore of aluminium ?

(1) Bauxite (2) Mica

(3) Corundum (4) Proustite

94. A saturated hydrocarbon having molecular mass 30 would contain C and H in the respective percentages as

(1) 30 : 70 (2) 20 : 80

(3) 80 : 20 (4) 50 : 50

95. Which of the following would have the largest radius ?

(1) F^- (2) O^{2-}

(3) Na^+ (4) Mg^{2+}

96. ClF_3 molecule is

(1) Seesaw shaped

(2) T-shaped

(3) Square planar

(4) Tetrahedral

97. Which of the following is an intensive property ?

(1) Mass (2) Volume

(3) Density (4) Heat capacity

98. Which one of the following would have the highest value of pH ?

(1) Lemon juice (2) Tomato juice

(3) Human blood (4) Lime water

99. Glyptal is a polymer of

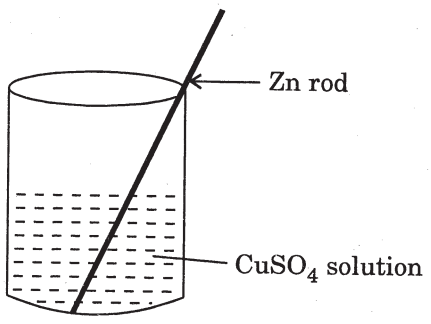
(1) acrylonitrile

(2) *o*-phthalic acid and ethylene glycol

(3) formaldehyde and ethylene glycol

(4) formaldehyde and styrene

100. In the following set-up of the reaction :



(1) Zn gets oxidised to Zn^{2+}

(2) Cu gets reduced to Cu^{2+}

(3) Cu gets oxidised to Cu^{2+}

(4) Zn^{2+} reduces to Zn