Name of Candidate: **Roll No.:**

SAMPLE ADAM ENTRANCE EXAMINATION

INSTRUCTIONS TO THE CANDIDATES

Total Marks : 125

Duration of Exam: 2 Hours

Written Test consists of Multiple Choice Questions (MCQ) and Engineering drawing test

A.	Basic Automotive	20 Marks
B.	Basic Physics	20 Marks
C.	Analytical reasoning	20 Marks
D.	Numerical ability	20 Marks
E.	Service Aptitude	20 Marks
F.	Engineering Drawing	25 Marks
	Total	125 Marks

Each question carries 1 mark. No negative marks for wrong answers.

Write the correct or best answer in the form of the options given (A, B, C or D) against the question number in the answer sheet provided using blue/black ball point pen only.

The question booklet and answer sheet should be returned after the completion of the examination

If any candidate is found to be indulged in any unfair activity/malpractice during the examination time, his/her candidature will be cancelled and he/she shall be debarred from taking this examination permanently in future.

Answer to the engineering drawing question is to be drawn to suitable scale using pencil in a separate sheet provided. Write your name and roll number at the top of the sheet.

A. BASIC AUTOMOTIVE

1. Which statements are correct?
    1. n-Heptane has assigned an octane number 0
    2. iso-octane has assigned an octane number 0
    3. n-Heptane has assigned an octane number 100
    4. iso-octane has assigned an octane number 100
        A) 1 & 3   B)2 & 4   C) 2 & 3   D) 1 & 4

2. If a tyre is designated as 215/65 R15 95 H, then the aspect ratio for the tyre is

    (A) 215   (B) 65   (C) 15   (D) 95

3. Angle which promotes self-centering of steering wheel of a vehicle

    (A) Caster   (B) Camber   (C) Toe In   (D) Toe Out

4. Car brand belongs to Mercedes Benz is
    (A) Lamborghini (B) Rolls-Royce (C) Maybach   (D) Bentley

5. Which statement is correct?
    (A) Spark plugs are found in diesel engines and glow plugs are in gasoline engines.
    (B) Spark plugs are found in gasoline engines and glow plugs are in diesel engines.
    (C) Spark plugs and glow plugs are found in gasoline engines.
    (D) Spark plugs and glow plugs are found in diesel engines.

B. BASIC PHYSICS

1. In the electromagnetic spectrum, ----------------------------- has wavelength higher than that of visible light

    A. Infrared   B. Ultraviolet   C. X-rays   D. Gamma rays

2. For total internal reflection to occur, the angle of incidence in the denser medium should be ---------------- than the critical angle.

    A. Less   B. Greater   C. Equal   D. none of these

3. In Newton's rings experiment , the central spot of the interference pattern in reflected system is

    A. Dark   B. Bright   C. In the form of bands   D. none of these

4. In the grating equation $\sin\theta = Nn\lambda$, angle θ is -----------------------
    A. Brewster's angle   B. angle of diffraction   C. principal angle   D. none of these

5. The working principle of SQUID
    A. Meissner effect   B. Josephson's effect   C. Casimir's effect   D. none of these

C. ANALYTICAL REASONING

1. The next two letters in the series Z,X,S,I,R,R,... are
   A) J.K
   B) K, L
   C) G,I
   D) U,Z

2. NURTURE : NEGLECT :: DENIGRATE : ?
   A) EXTOL
   B) ALLEVIATE
   C) CALUMNIATE
   D) DECIMATE

3. Select the pair of words that have the same relationship as the pair DUBIOUS : CERTAIN
   A) CODE : LANGUAGE
   B) BATTLE : SKIRMISH
   C) FIENDISH : COMPASSIONATE
   D) TRANSIENT : EPHEMERAL

4. Find the wrong number in the given series 126720, 14572, 1152, 144, 24
   A) 126720
   B) 1152
   C) 14572
   D) 144

5. If Nidhi is 52nd from the top and 47th from the bottom of a list, the total number of names in the list is
   A) 98
   B) 99
   C) 100
   D) 101

D. NUMERICAL ABILITY

1. There are 35 inmates in a hostel. If the number of inmates is increased by 7, the expenses of the mess increase by Rs. 8400 and the average expenditure per head gets reduced by Rs.100. The original expenditure of the mess is
   A) 42000
   B) 125000
   C) 45500
   D) 21000

2. A garrison has provisions for 'n' number of days. One-fifth of the men desert after 10 days and it was found that now the provisions still lasted for 'n' days after that. The value of 'n' is

A) 50

B) 100

C) 75

D) 125

3. In what proportion must juice of Rs.80 per litre be mixed with juice of Rs.72.5 per litre so that the mixture be worth Rs.77 per litre ?
   A) 3 : 2
   B) 4 : 3
   C) 8 : 7
   D) 6 : 5

4. The value of an automobile depreciates every year at the rate of 20% on its value at the beginning of that year. If the present value is Rs. 5.12 lakhs, its worth three years ago was
   A) 8 lakhs
   B) 10 lakhs
   C) 10.24 lakhs
   D) 12 lakhs

5. A dishonest shopkeeper claims that he sells sugar at the cost price. But he uses a weight of 450 g instead of 500 g. His actual profit percentage is

   A) $9\frac{1}{9}$ %
   B) $10\frac{1}{3}$ %
   C) $11\frac{1}{9}$ %
   D) $9\frac{1}{3}$ %

E. SERVICE APTITUDE

1. A complaining customer
   A) helps you to identify trouble makers
   B) wastes the time of the company and affects productivity
   C) is always right
   D) can help you to understand what is not working in your company

2. A customer demands to fix a problem immediately. But you know that it is not possible in that time frame. Your response will be to
   A) escalate to your superior officer
   B) assure the customer that it will be done and report to your boss
   C) try to convince the customer that this needs more time
   D) prove that the customer is being unreasonable

3. If you come to know that your colleague faces issues at the work place, you will
   A) ask him to ignore it and proceed as usual

B) stay clear of the issue as it is best to mind one's own business

C) support him by doing whatever it takes to solve the issue

D) put forth your suggestions and let him decide on his own

4. Some of the team members criticize the project plan you presented. They say the project is not feasible at all. Your response will be

A) to ask for specific inputs

B) to defend the plan at all costs

C) to accept the criticism and shelf the plan

D) to convince the boss about the merit of your plan

5. You are the manager of a service team. An employee didn't turn up for the service of an important customer since he had some social commitments. You will

A) suspend the employee and apologize to the customer

B) warn the employee and do the task yourself

C) ask the employ to notify you in the future and assign the task to a guy with same skillset

D) tell the employee that you understand his situation and do the job yourself

F. ENGINEERING DRAWING

1. Draw the front view, top view and any one side view of the bracket model given in figure. The front view side is marked with arrow F. All dimensions are in mm.   (25 marks)