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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA

SEM: II - THEORY EXAMINATION (2025- 2026)

Subject: Cognitive Ability

Time: 2 Hours

Max. Marks: 50

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C**. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

15

1. Attempt all parts:-

(1.1) Identify the following numbers is a Rational Number. (CO1, K2)

1

- (a) $\sqrt{5}$
- (b) π
- (c) $33/50$
- (d) $\sqrt{7}$

(1.2) Number of trailing zeros in $10!$ is: (CO2, K3)

1

- (a) 3
- (b) 2
- (c) 1
- (d) 4

(1.3) Missing term in the Series: A1, C4, F9, J16, O25, ----. (CO3, K2)

1

- (a) U36
- (b) T36
- (c) U30
- (d) S36

(1.4) Cost price of an article is ₹500 and selling price is ₹550. Then profit percentage is: (CO4, K3)

1

- (a) 0.1
- (b) 0.05
- (c) 0.15
- (d) 0.2

- (1.5) Average of 5 numbers is 20. Sum of numbers will be _____. (CO5, K3) 1
- (a) 100
- (b) 80
- (c) 90
- (d) 110

2. Attempt all parts:-

- (2.1) Check whether 720155 is divisible by 5 or not. (CO1, K3) 2
- (2.2) Find the last two digits of 11^2 . (CO2, K3) 2
- (2.3) If ROAD coded as URDG. Write Code for GAME. (CO3, K2) 2
- (2.4) If today is Monday, then find day after 45 days. (CO4, K2) 2
- (2.5) Downstream speed is 20 km/h and upstream speed is 12 km/h. Find the speed of the boat in still water. (CO5, K3) 2

SECTION-B

15

Answer any one of the following:-

- (3.1) Determine LCM of 18, 24, and 30 using prime factorization method. (CO1, K3) 3
- (3.2) Evaluate: (i) $475 \times 475 + 125 \times 125$ 3
(ii) $796 \times 796 - 204 \times 204$. (CO1, K3)

Answer any one of the following:-

- (3.3) A man said, "The son of my mother's sister is the brother of my wife." Identify the relation of that person to the man. (CO2, K2) 3
- (3.4) Find the next number: 20, 17, 34, 31, 62, 59, ____ (CO2, K2) 3

Answer any one of the following:-

- (3.5) A invests ₹8000 for 12 months, B invests ₹12000 for 8 months and C invests ₹10000 for 6 months. Find profit sharing ratio of A, B & C. (CO3, K3) 3
- (3.6) If $a : b = 3 : 5$, $b : c = 4 : 7$ and $c : d = 2 : 3$, find $a : b : c : d$. (CO3, K3) 3

Answer any one of the following:-

- (3.7) A book was sold for ₹27.50 with a profit of 10%. If it were sold for ₹25.75, then calculate the percentage of profit or loss. (CO4, K3) 3
- (3.8) Find the sum of money which will amount to ₹ 26010 in 6 months at the rate of 8% per annum when the interest is compounded quarterly. (CO4, K3) 3

Answer any one of the following:-

- (3.9) The average monthly expenditure of a family was ₹2200 during the first 3 months; ₹ 2250 during the next 4 months and ₹ 3120 during the last 5 months of a year. If the total savings during the year were ₹ 1260, find the average monthly income of the family. (CO5, K3) 3
- (3.10) A and B can complete a piece of work in 45 days and 40 days respectively. They begin the work together. After some days, A leaves and B alone finishes the remaining work in 23 days. Find number of days after which A leaves the work 3

.(CO5. K3)

SECTION-C

20

4. Answer any one of the following:-

(4.1) A person moves 10 m north, 6 m east, 10 m south, and 4 m west. Determine the final position from the starting point and direction faced. (CO1, K2) 4

(4.2) **Factorise** : $2x^2 + 7x + 3$. (CO1,K3) 4

5. Answer any one of the following:-

(5.1) Find missing term : SCD, TEF, UGH, _____, WKL(CO2, K2) 4

(5.2) Find the unit digit of $7^{123} \times 3^{98} \times 9^{45}$ (CO2,K3) 4

6. Answer any one of the following:-

(6.1) Find the missing term: Z1, X4, U9, Q16, L25, ----. (CO3, K2) 4

(6.2) Present age ratio of A and B is 4 : 5. After 8 years, ratio becomes 6 : 7. Find present ages. (CO3, K3) 4

7. Answer any one of the following:-

(7.1) Marked price of an article is ₹1200. Two successive discounts of 10% and 20% are allowed. Calculate final selling price. (CO4, K3) 4

(7.2) Calculate Simple interest on ₹8000 at 10% per annum for 2 years, if interest is payable half yearly. (CO4, K3) 4

8. Answer any one of the following:-

(8.1) Find the ratio that must a grocer mix two varieties of pulses costing ₹ 15 and ₹ 20 per kg respectively so as to get a mixture worth ₹ 16.50 per kg . (CO5. K3) 4

(8.2) A man walked at a speed of 4 km/hr from point A to B and came back from point B to A at the speed of 6 km/hr. Find the ratio of the time taken by the man in walking from point A to B to that from point B to A. (CO5. K3) 4