

53) For the O^{17} nucleus ($A = 17, Z = 8$), the effective magnetic moment is given by,

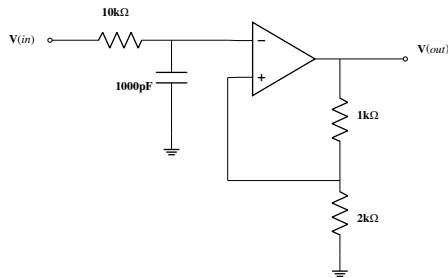
$$\overrightarrow{\mu_{eff}} = \frac{eh}{2Mc} g \overrightarrow{J} \quad (53.1)$$

where g is equal to, ($g_s = 5.59$ for proton and -3.83 for neutron)

- a) 1.12 b) -0.77 c) -1.28 d) 1.28

0.1 Statement for Linked Answer Questions 54 and 55:

Consider the following circuit



54) For this circuit the frequency above which the gain will decrease by 20 dB per decade is

- a) 15.9 kHz b) 1.2 kHz c) 5.6 kHz d) 22.5 kHz

55) At 1.2kHz the closed loop gain is

- a) 1 b) 1.5 c) 3 d) 0.5

1 GENERAL APTITUDE (GA) QUESTIONS

1.1 Q.56-Q.60 carry one mark each.

56) A number is as much greater than 75 as it is smaller than 117. The number is:

- a) 91 c) 89
b) 93 d) 96

57) The professor ordered to the students to go out of the class.
 I II III IV

- a) I b) II c) III d) IV

58) Which of the following options is the closest in meaning to the word given below:
 Primeval

- a) Modern c) Primitive
 b) Historic d) Antique

59) Friendship, no matter how _____ it is, has its limitations.

- a) cordial
 b) intimate
 c) secret
 d) pleasant

60) Select the pair that best expresses a relationship similar to that expressed in the pair:
Medicine: Health

- a) Science:Experiment c) Education:Knowledge
 b) Wealth:Peace d) Money:Happiness

1.2 Q.61 to Q.65 carry two marks each.

61) X and Y are two positive real numbers such that $2X + Y \leq 6$ and $X + 2Y \leq 8$. For which of the following values of (X, Y) the function $f(X, Y) = 3X + 6Y$ will give maximum value?

- a) $\left(\frac{4}{3}, \frac{10}{3}\right)$
 b) $\left(\frac{8}{3}, \frac{20}{3}\right)$
 c) $\left(\frac{8}{3}, \frac{10}{3}\right)$
 d) $\left(\frac{4}{3}, \frac{20}{3}\right)$

62) If $|4X - 7| = 5$ then the values of $2|X| - |-X|$ is:

- a) $2, \frac{1}{3}$ b) $\frac{1}{2}, 3$ c) $\frac{3}{2}, 9$ d) $\frac{2}{3}, 9$

63) Following table provides figures (in rupees) on annual expenditure of a firm for two years—2010 and 2011.

Category	2010	2011
Raw material	5200	6240
Power & fuel	7000	9450
Salary & wages	9000	12600
Plant & machinery	20000	25000
Advertising	15000	19500
Research & Development	22000	26400

In 2011, which of the following two categories have registered increase by same percentage?

- a) Raw material and Salary & wages
- b) Salary & wages and Advertising
- c) Power & fuel and Advertising
- d) Raw material and Research & Development

64) A firm is selling its product at *RS.60* per unit. The total cost of production is *Rs.100* and firm is earning total profit of *Rs.500*. Later, the total cost increased by 30%. By what percentage the price should be increased to maintained the same profit level.

- a) 5
- b) 10
- c) 15
- d) 30

65) Abhishek is elder to Savar.

Savar is younger to Anshul.

Which of the given conclusions is logically valid and is inferred from the above statements?

- a) Abhishek is elder to Anshul
- b) Anshul is elder to Abhishek
- c) Abhishek and Anshul are of the same age
- d) No conclusion follows