PART–I

(PHYSICS)

1. (*a*) Always velocity = $\frac{\text{Distance}}{\text{Time}}$

(*b*) Always acceleration

$= \frac{\text{Uniform velocity}}{\text{Time}}$

(*c*) Always retardation = change of $\frac{\text{Velocity}}{\text{Time}}$

(A) (*a*) and (*b*) are correct (*c*) is wrong

(B) (*c*) is correct, (*a*) and (*b*) are wrong

(C) (*a*) and (*c*) are correct, (*b*) is wrong

(D) (*b*) and (*c*) are wrong, (*a*) is correct

1. (*a*) ସର୍ବଦା ପରିବେଗ = $\frac{\text{ଦୂରତ୍ୱ}}{\text{ସମୟ}}$

(*b*) ସର୍ବଦା ତ୍ୱରଣ = $\frac{\text{ସମ ପରିବେଗ}}{\text{ସମୟ}}$

(*c*) ସର୍ବଦା ମନ୍ଦନ = $\frac{\text{ପରିବେଗର ପରିବର୍ତ୍ତନ}}{\text{ସମୟ}}$

(A) (*a*) ଓ (*b*) ଠିକ୍, (*c*) ଭୁଲ୍

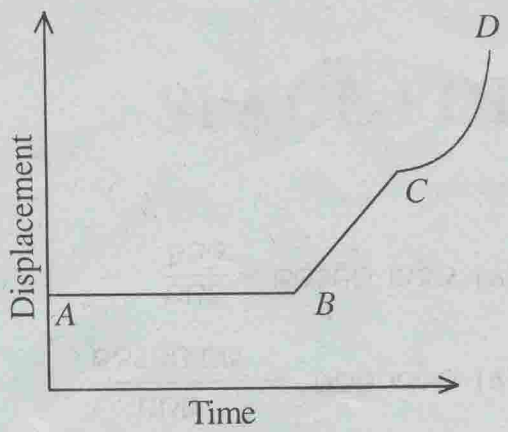
(B) (*c*) ଠିକ୍, (*a*) ଓ (*b*) ଭୁଲ୍

(C) (*a*) ଓ (*c*) ଠିକ୍, (*b*) ଭୁଲ୍

(D) (*b*) ଓ (*c*) ଭୁଲ୍, (*a*) ଠିକ୍

(*Space For Rough Work*)

2.



In the given graph

(*a*) *BC*, represents uniform velocity.

(*b*) *AB*, represents non-uniform velocity.

(*c*) *CD*, represents uniform acceleration.

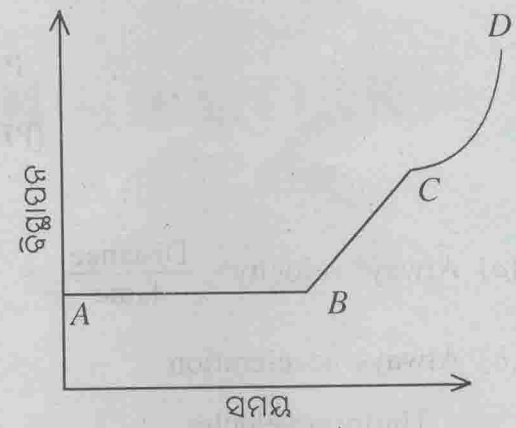
(A) (*a*) is correct, (*b*) and (*c*) are wrong

(B) (*a*) and (*b*) are correct, (*c*) is wrong

(C) (*a*) and (*c*) are wrong, (*b*) is correct

(D) (*b*) is wrong, (*a*) and (*c*) are correct

2.



ଦତ୍ତ ରେଖାଚିତ୍ରରେ

(*a*) *BC*-ସମପରିବେଗକୁ ସୂଚାଉଛି ।

(*b*) *AB*-ଅସମ ପରିବେଗକୁ ସୂଚାଉଛି ।

(*c*) *CD*-ସମତ୍ୱରଣକୁ ସୂଚାଉଛି ।

(A) (*a*) ଠିକ୍, (*b*) ଓ (*c*) ଭୁଲ୍

(B) (*a*) ଓ (*b*) ଠିକ୍, (*c*) ଭୁଲ୍

(C) (*a*) ଓ (*c*) ଭୁଲ୍, (*b*) ଠିକ୍

(D) (*b*) ଭୁଲ୍, (*a*) ଓ (*c*) ଠିକ୍

(*Space For Rough Work*)

(*Continued*)

3. If the radius of the lunar orbit is 'x' units, then in 15 days the angular and linear displacement of moon would be respectively,

(*a*) 90°, πx

(*b*) 180°, $2\pi x$

(*c*) 180°, $2x$

(A) (*a*) and (*b*) are wrong, (*c*) is correct

(B) (*b*) and (*c*) are wrong, (*a*) is correct

(C) (*b*) is correct, (*a*) and (*c*) are wrong

(D) (*a*), (*b*) and (*c*) are wrong

3. ଯଦି ଚନ୍ଦ୍ର କକ୍ଷର ବ୍ୟାସାର୍ଦ୍ଧ 'x' ଏକକ ହୁଏ, ତେବେ 15 ଦିନରେ ଚନ୍ଦ୍ରର କୌଣିକ ବିସ୍ଥାପନ ଓ ରେଖିକ ବିସ୍ଥାପନ ଯଥାକ୍ରମେ ହେବ,

(*a*) 90°, πx

(*b*) 180°, $2\pi x$

(*c*) 180°, $2x$

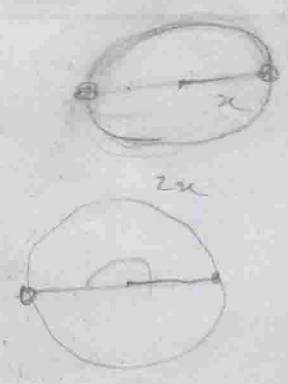
(A) (*a*) ଓ (*b*) ଭୁଲ୍, (*c*) ଠିକ୍

(B) (*b*) ଓ (*c*) ଭୁଲ୍, (*a*) ଠିକ୍

(C) (*b*) ଠିକ୍, (*a*) ଓ (*c*) ଭୁଲ୍

(D) (*a*), (*b*) ଓ (*c*) ଭୁଲ୍

(*Space For Rough Work*)



4. Which one/are of the following represent(s) acceleration ?

(a) $\frac{v^2 - u^2}{2s}$

(b) $\frac{2(s - ut)}{t^2}$

(c) $\frac{v - u}{t}$

(A) (a) is wrong, (b) and (c) are correct

(B) (a) and (c) are correct, (b) is wrong

(C) (c) is correct, (a) and (b) are wrong

(D) (a), (b) and (c) are correct

4. ନିମ୍ନୋକ୍ତ ମଧ୍ୟରୁ କେଉଁଟି/କେଉଁଗୁଡ଼ିକ ତ୍ୱରଣକୁ ସୂଚାଏ ?

(a) $\frac{v^2 - u^2}{2s}$

(b) $\frac{2(s - ut)}{t^2}$

(c) $\frac{v - u}{t}$

(A) (a) ଭୁଲ୍, (b) ଓ (c) ଠିକ୍

(B) (a) ଓ (c) ଠିକ୍, (b) ଭୁଲ୍

(C) (c) ଠିକ୍, (a) ଓ (b) ଭୁଲ୍

(D) (a), (b) ଓ (c) ଠିକ୍

(Space For Rough Work)

(Continued)

5. Force is

(*a*) a vector quantity

(*b*) the product of mass and acceleration

(*c*) Energy spent per unit mass

(A) (*a*) and (*c*) are wrong, (*b*) is correct

(B) (*c*) is correct, (*a*) and (*b*) are wrong

(C) (*a*) and (*b*) are correct, (*c*) is wrong

(D) (*a*), (*b*) and (*c*) are correct

5. ବଳ ହେଉଛି,

(*a*) ଏକ ସଦିଶ ରାଶି

(*b*) ବସ୍ତୁତ୍ୱ ଓ ତ୍ୱରଣର ଗୁଣଫଳ

(*c*) ପ୍ରତି ଏକକ ବସ୍ତୁତ୍ୱ ପାଇଁ ବ୍ୟୟିତ ଶକ୍ତି

(A) (*a*) ଓ (*c*) ଭୁଲ୍ (*b*) ଠିକ୍

(B) (*c*) ଠିକ୍, (*a*) ଓ (*b*) ଭୁଲ୍

(C) (*a*) ଓ (*b*) ଠିକ୍ (*c*) ଭୁଲ୍

(D) (*a*), (*b*) ଓ (*c*) ଠିକ୍

6. (*a*) When 20 N force is applied on a body of mass 8 kg, the acceleration produced is 2·5 m/s^2

(*b*) Gravitation is an isolated force

(*c*) The energy required in lifting a body of 5 kg mass to a height of 2 m is 100 J

($g = 10$ m/s^2)

(A) (*a*) and (*c*) are correct, (*b*) is wrong

(B) (*b*) and (*c*) are wrong, (*a*) is correct

(C) (*b*) is correct, (*a*) and (*c*) are wrong

(D) (*c*) is wrong, (*a*) and (*b*) is correct

6. (*a*) 8 kg (କିଲୋଗ୍ରାମ୍) ବସ୍ତୁତ୍ୱ ବିଶିଷ୍ଟ ଏକ ବସ୍ତୁ ଉପରେ 20 ନିଉଟନ୍ ବଳ ପ୍ରୟୋଗ କଲେ, ତ୍ୱରଣ 2·5 ମିଟର/ବର୍ଗସେକେଣ୍ଡ ହେବ ।

(*b*) ମହାକର୍ଷଣ ଏକ ଏକାକୀ ବଳ ଅଟେ ।

(*c*) 5 କିଲୋଗ୍ରାମ୍ ବସ୍ତୁତ୍ୱ ବିଶିଷ୍ଟ ବସ୍ତୁକୁ 2 ମିଟର୍ ଉଚ୍ଚକୁ ଉଠାଇବା ପାଇଁ 100 J ଶକ୍ତି ଆବଶ୍ୟକ ।

($g = 10$ ମିଟର/ବର୍ଗସେକେଣ୍ଡ)

(A) (*a*) ଓ (*c*) ଠିକ୍, (*b*) ଭୁଲ୍

(B) (*b*) ଓ (*c*) ଭୁଲ୍, (*a*) ଠିକ୍

(C) (*b*) ଠିକ୍, (*a*) ଓ (*c*) ଭୁଲ୍

(D) (*c*) ଭୁଲ୍, (*a*) ଓ (*b*) ଠିକ୍

(*Space For Rough Work*)

$F = 20\ N$

$m = 8\ kg$

$a = 2.5\ m/s^2$

$Ma = 8 \times 2.5$

$F = 20.0\ N$

$5 \times 10 \times 2$

100

7. (*a*) Pressure exerted by a body of mass 20 kg supported by a base-area of 250 cm^2 is 8×10^3 N/m^2

(*b*) Liquid pressure depends on the shape and size of the container.

(*c*) The pressure at a point within the liquid depends on its depth from the surface of the liquid.

(A) (*a*) and (*b*) are correct, (*c*) is wrong

(B) (*b*) and (*c*) are wrong, (*a*) is correct

(C) (*b*) is wrong, (*a*) and (*c*) are correct

(D) (*a*), (*b*) and (*c*) are correct

7. (*a*) ଏକ 20 kg ବସ୍ତୁତ୍ୱ ବିଶିଷ୍ଟ ବସ୍ତୁକୁ 250 cm^2 ଆଧାର ଉପରେ ରଖିଲେ ସୃଷ୍ଟ ଚାପ ହେବ 8×10^3 N/m^2

(*b*) ତରଳ ପଦାର୍ଥର ଚାପ ଧାରକ (ପାତ୍ର)ର ଆକୃତି ଓ ଆକାର ଉପରେ ନିର୍ଭର କରେ ।

(*c*) ତରଳ ପଦାର୍ଥସ୍ଥ ଏକ ବିନ୍ଦୁରେ ସୃଷ୍ଟ ଚାପ ତରଳ ପଦାର୍ଥର ପୃଷ୍ଠରୁ ବିନ୍ଦୁର ଗଭୀରତା ଉପରେ ନିର୍ଭର କରେ ।

(A) (*a*) ଓ (*b*) ଠିକ୍, (*c*) ଭୁଲ୍

(B) (*b*) ଓ (*c*) ଭୁଲ୍, (*a*) ଠିକ

(C) (*b*) ଭୁଲ୍, (*a*) ଓ (*c*) ଠିକ୍

(D) (*a*), (*b*) ଓ (*c*) ଠିକ୍

8. The weight of a stone is 100g in air. When it is dipped in kerosene, it weighs 75g and in salt solution 60g. The relative density of salt solution with respect to that of kerosene would be

(A) 1·6

(B) 6·1

(C) 2·6

(D) 6·0

8. ଖଣ୍ଡେ ପଥରର ବାୟୁରେ ଓଜନ 100 ଗ୍ରାମ୍ ଅଟେ । ତାହାକୁ କିରୋସିନ୍‌ରେ ବଡ଼ାଇଲେ ଓଜନ 75 ଗ୍ରାମ୍ ଏବଂ ଲୁଣ ପାଣିରେ ବଡ଼ାଇଲେ 60 ଗ୍ରାମ୍ ହୁଏ । ତେବେ କିରୋସିନ୍ ସହ ଲୁଣପାଣିର ଆପେକ୍ଷିକ ସାନ୍ଦ୍ରତା ହେବ,

(A) 1·6

(B) 6·1

(C) 2·6

(D) 6·0

(*Space For Rough Work*)

(*Continued*)

9. A force when acts on a body east-wards, the body is displaced 40 m. When the force of same magnitude acts on the same body (from its new position) south-wards, the body is displaced 30 m. The magnitude of the resultant displacement of the body would be

(A) 10 m

(B) 50 m

(C) 70 m

(D) 1200 m

9. ଗୋଟିଏ ବସ୍ତୁ ଉପରେ ବଳ ପୂର୍ବଦିଗ ଆଡ଼କୁ ପ୍ରୟୋଗ କରିବାରୁ ତାହା 40 ମିଟର ବିସ୍ଥାପିତ ହେଲା । ପୁଣି ବସ୍ତୁର ନୂତନ ଅବସ୍ଥାନରୁ ସେହି ପରିମାଣର ବଳ ଦକ୍ଷିଣ ଦିଗ ଆଡ଼କୁ ପ୍ରୟୋଗ କରିବାରୁ ବସ୍ତୁଟି 30 ମିଟର୍ ବିସ୍ଥାପିତ ହେଲା । ତେବେ ବସ୍ତୁର ପରିଣାମୀ ବିସ୍ଥାପନ ହେବ

(A) 10 ମିଟର୍

(B) 50 ମିଟର୍

(C) 70 ମିଟର୍

(D) 1200 ମିଟର୍

10. The momentum of a body of mass 2 kg changes from 80 kg m/s to 50 kg m/s. The change in its kinetic -energy would be

(A) 625 J

(B) 975 J

(C) 1200 J

(D) 1600 J

10. ଗୋଟିଏ 2 kg ବସ୍ତୁତ୍ୱ ବିଶିଷ୍ଟ ବସ୍ତୁର ସଂବେଗ 80 kg m/s ରୁ 50 kg m/s କୁ ପରିବର୍ତ୍ତନ ହେଲେ, ତାହାର ଗତିଜ ଶକ୍ତିର ପରିବର୍ତ୍ତନ ହେବ

(A) 625 ଜୁଲ୍

(B) 975 ଜୁଲ୍

(C) 1200 ଜୁଲ୍

(D) 1600 ଜୁଲ୍

(*Space For Rough Work*)

11. What time would be required to fill completely a tank of 18,000 litres capacity by water pulled from a depth of 7·46 m by a motor of 1·5 H.P ?

(A) 10 minutes

(B) 15 minutes

(C) 18 minutes

(D) 20 minutes

12. If two bodies A and B of masses M_1 and M_2 respectively $(M_1 > M_2)$ have the same momentum, then

(*a*) Energy of A > Energy of B

(*b*) Velocity of A > Velocity of B

(*c*) Energy of B > Energy of A

(*d*) Velocity of B > Velocity of A

(A) (*a*) and (*d*) are correct, (*b*) and (*c*) are wrong

(B) (*a*) and (*b*) are wrong, (*c*) and (*d*) are correct

(C) (*b*) and (*c*) are correct, (*a*) and (*d*) are wrong

(D) (*a*) and (*c*) are correct, (*b*) and (*d*) are wrong

11. 18,000 ଲିଟର୍ ଜଳଧରୁଥିବା ଏକ ଟାଙ୍କିରେ 7·46 ମିଟର୍ ତଳୁ ପାଣିଟାଣି ସଂପୂର୍ଣ୍ଣଭାବେ ଭରିବାକୁ ଏକ 1·5 ଅଶ୍ୱକ୍ଷମତା ବିଶିଷ୍ଟ ମୋଟର୍‌କୁ କେତେ ସମୟ ଲାଗିବ ?

(A) 10 ମିନିଟ୍

(B) 15 ମିନିଟ୍

(C) 18 ମିନିଟ୍

(D) 20 ମିନିଟ୍

12. ଦୁଇଟି ବସ୍ତୁ A ଓ B ର ବସ୍ତୁତ୍ୱ ଯଥାକ୍ରମେ M_1 ଓ M_2 $(M_1 > M_2)$ ଅଟେ । ଯଦି ସେଗୁଡ଼ିକର ସଂବେଗ ସମାନ ହୁଏ, ତେବେ

(*a*) A ର ଶକ୍ତି > B ର ଶକ୍ତି

(*b*) A ର ପରିବେଗ > B ର ପରିବେଗ

(*c*) B ର ଶକ୍ତି > A ର ଶକ୍ତି

(*d*) B ର ପରିବେଗ > A ର ପରିବେଗ

(A) (*a*) ଓ (*d*) ଠିକ୍, (*b*) ଓ (*c*) ଭୁଲ୍

(B) (*a*) ଓ (*b*) ଭୁଲ୍, (*c*) ଓ (*d*) ଠିକ୍

(C) (*b*) ଓ (*c*) ଠିକ୍ , (*a*) ଓ (*d*) ଭୁଲ୍

(D) (*a*) ଓ (*c*) ଠିକ୍, (*b*) ଓ (*d*) ଭୁଲ୍

(*Space For Rough Work*)

(*Continued*)

13. For what properties, mercury is used as the thermometric substance ?

(*a*) Due to its high thermal expansion.

(*b*) Due to its high density.

(*c*) Due to its greater specific heat.

(*d*) Due to its property of non-sticking to glass.

(A) (*a*) and (*d*) are wrong, (*b*) and (*c*) are correct

(B) (*b*) and (*d*) are correct, (*a*) and (*c*) are wrong

(C) (*a*) and (*b*) are wrong, (*c*) and (*d*) are correct

(D) (*b*) and (*c*) are wrong, (*a*) and (*d*) are correct

13. ପାରଦର କେଉଁ କେଉଁ ଗୁଣ ଯୋଗୁଁ ତାହାକୁ ତାପମାନ ଯନ୍ତ୍ରରେ ବ୍ୟବହାର କରାଯାଏ ?

(*a*) ଏହାର ଅଧିକ ତାପୀୟ ପ୍ରସାରଣ ଗୁଣ ଯୋଗୁଁ

(*b*) ଏହାର ଅଧିକ ସାନ୍ଦ୍ରତା ଯୋଗୁଁ

(*c*) ଏହାର ଅଧିକ ବିଶିଷ୍ଟ ତାପ ଯୋଗୁଁ

(*d*) ଏହା କାଚରେ ଲାଗିରହେ ନାହିଁ

(A) (*a*) ଓ (*d*) ଭୁଲ୍, (*b*) ଓ (*c*) ଠିକ୍

(B) (*b*) ଓ (*d*) ଠିକ୍, (*a*) ଓ (*c*) ଭୁଲ୍

(C) (*a*) ଓ (*b*) ଭୁଲ୍, (*c*) ଓ (*d*) ଠିକ

(D) (*b*) ଓ (*c*) ଭୁଲ୍, (*a*) ଓ (*d*) ଠିକ୍

14. What would be the temperature of the mixture when 2 litres of water at $10^{\circ}C$ is mixed with 5 litres of water at $80^{\circ}C$?

(A) $35^{\circ}C$

(B) $45^{\circ}C$

(C) $60^{\circ}C$

(D) $70^{\circ}C$

14. $10^{\circ}C$ ତାପମାତ୍ରା ବିଶିଷ୍ଟ 2 ଲିଟର୍ ଜଳସହ $80^{\circ}C$ ତାପମାତ୍ରା ବିଶିଷ୍ଟ 5 ଲିଟର୍ ଜଳ ମିଶାଇଲେ ମିଶ୍ରଣର ତାପମାତ୍ରା କେତେ ହେବ ?

(A) $35^{\circ}C$

(B) $45^{\circ}C$

(C) $60^{\circ}C$

(D) $70^{\circ}C$

(*Space For Rough Work*)

$2 \times 1 \times (T-10) = 5 \times 1 \times (80-T)$

$\Rightarrow 2T - 20 = 400 - 5T$

$\Rightarrow 7T = 420$

$\Rightarrow T = \frac{420}{7} = 60$

15. (*a*) Radiation of heat does not need a medium always

(*b*) The temperature range of a clinical thermometer is (95 °C to 110 °C)

(*c*) The normal temperature of a healthy human body is usually 37 °C.

(A) (*a*) and (*b*) are correct, (*c*) is wrong

(B) (*b*) is wrong, (*a*) and (*c*) are correct

(C) (*a*) and (*c*) are wrong, (*b*) is correct

(D) (*a*), (*b*) and (*c*) are wrong

15. (*a*) ତାପ ବିକିରଣ ପାଇଁ ସର୍ବଦା ମାଧ୍ୟମର ଆବଶ୍ୟକ ହୁଏ ନାହିଁ ।

(*b*) ଏକ ଡାକ୍ତରୀ ଥର୍ମୋମିଟର୍‌ର ତାପମାତ୍ରା ସୀମା 95 °C ରୁ 110 °C ମଧ୍ୟରେ ଥାଏ ।

(*c*) ସୁସ୍ଥ ମାନବ ଶରୀରର ସାଧାରଣ ତାପମାତ୍ରା ସାଧରଣତଃ 37 °C ଅଟେ ।

(A) (*a*) ଓ (*b*) ଠିକ୍, (*c*) ଭୁଲ୍

(B) (*b*) ଭୁଲ୍, (*a*) ଓ (*c*) ଠିକ୍

(C) (*a*) ଓ (*c*) ଭୁଲ୍, (*b*) ଠିକ୍

(D) (*a*), (*b*) ଓ (*c*) ଭୁଲ୍

16. What quantity of heat is required to convert 10 ml of pure water at 0 °C to steam at 100 °C under normal-pressure ?

(A) 1000 calories

(B) 6400 calories

(C) 10,000 calories

(D) 26,880 calories

16. 0°C ରେ ଥିବା 10 ମିଲିଲିଟର୍ ବିଶୁଦ୍ଧ ଜଳକୁ 100 °C ତାପମାତ୍ରା ବିଶିଷ୍ଟ ବାଷ୍ପରେ (ମାନକ ଚାପରେ ବା ନରମାଲ ପ୍ରେସର୍‌ରେ) ପରିବର୍ତ୍ତନ କରିବା ପାଇଁ କେତେ ତାପ ଆବଶ୍ୟକ ?

(A) 1000 କେଲୋରି

(B) 6400 କେଲୋରି

(C) 10,000 କେଲୋରି

(D) 26,880 କେଲୋରି

(*Space For Rough Work*)

(*Continued*)

17. (*a*) During conduction of heat, the particles of the conductor only transfer energy to the neighbouring particles without changing their positions.

(*b*) Electrical resistance of a cylindrical conductor is inversely proportional to the square of its radius.

(*c*) Rise of temperature in a metallic conductor decreases its electrical conductivity.

(A) (*b*) and (*c*) are correct, (*a*) is wrong

(B) (*a*) and (*b*) are wrong, (*c*) is correct

(C) (*b*) is wrong, (*a*) and (*c*) are correct

(D) (*a*), (*b*) and (*c*) are correct

17. (*a*) କୌଣସି ସୁପରିବାହୀ ମଧ୍ୟରେ ତାପ ସଂଚରଣ ବେଳେ ତାହାର କଣିକାଗୁଡ଼ିକ ସ୍ଥାନାନ୍ତରିତ ନହୋଇ କେବଳ ଶକ୍ତିକୁ ପଡ଼ୋଶୀ କଣିକା ମାନଙ୍କୁ ପ୍ରଦାନ କରିଥାଆନ୍ତି ।

(*b*) ଏକ ସିଲିଣ୍ଡର୍ ଆକୃତିବିଶିଷ୍ଟ ବିଦ୍ୟୁତ୍ ପରିବାହୀର ପ୍ରତିରୋଧ ତାହାର ବ୍ୟାସାର୍ଦ୍ଧର ବର୍ଗର ପ୍ରତିଲୋମାନୁପାତି ଅଟେ ।

(*c*) ତାପମାତ୍ରା ବୃଦ୍ଧି ହେଲେ ଧାତବ ପରିବାହୀର ବିଦ୍ୟୁତ୍ ପରିବହନ କ୍ଷମତା ହ୍ରାସ ହୋଇଥାଏ ।

(A) (*b*) ଓ (*c*) ଠିକ୍, (*a*) ଭୁଲ୍

(B) (*a*) ଓ (*b*) ଭୁଲ୍, (*c*) ଠିକ୍

(C) (*b*) ଭୁଲ୍, (*a*) ଓ (*c*) ଠିକ୍

(D) (*a*), (*b*) ଓ (*c*) ଠିକ୍

(*Space For Rough Work*)

18. A 1·0 m long matallic wire of uniform crossection is drawn into a 3·0 m long wire of uniform cross-section. What would be the resistance of the new wire compared to that of the original wire ?

(A) 3 times

(B) 9 times

(C) $\frac{1}{3}$ times

(D) $\frac{1}{9}$ times

18. ଏକ ସମମୋଟେଇ ବିଶିଷ୍ଟ 1·0 ମିଟର୍ ଲମ୍ବର ଧାତବ ତାରକୁ ଟାଣି ସମମୋଟେଇ ବିଶିଷ୍ଟ 3·0 ମିଟର୍ ଲମ୍ବ କରାଗଲା । ନୂତନ ତାରର ପ୍ରତିରୋଧ ମୂଳ ତାରର ପ୍ରତିରୋଧର କେତେ ଗୁଣ ହେବ ?

(A) 3 ଗୁଣ

(B) 9 ଗୁଣ

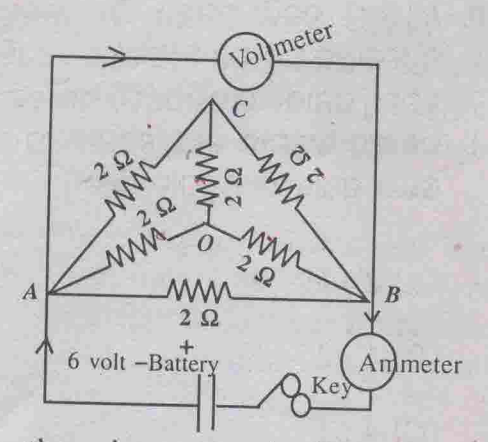
(C) $\frac{1}{3}$ ଗୁଣ

(D) $\frac{1}{9}$ ଗୁଣ

(Space For Rough Work)

(Continued)

19.



In the given circuit diagram, on closing the key.

(a) The reading of the ammeter would be 6 Ampere.

(b) The reading of the voltmeter would be 6 volt.

(c) Effective Resistance across *A* and *B* would be 2 ohm.

(d) Effective Resistance across *B* and *A* would be 1 ohm.

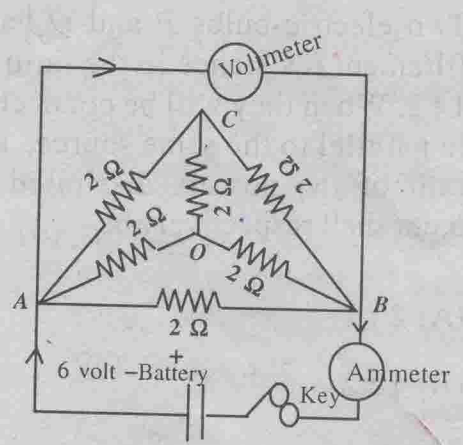
(A) (*a*), (*b*) and (*c*) are correct, (*d*) is wrong

(B) (*b*) and (*c*) are correct, (*a*) and (*d*) are wrong

(C) (*a*), (*b*) and (*d*) are correct, (*c*) is wrong

(D) (*b*), (*c*) and (*d*) are wrong, (*a*) is correct

19.



ଦତ୍ତ ପରିପଥ ଚିତ୍ର ଅନୁସାରେ ସ୍ୱିଚ୍(key)କୁ ବନ୍ଦ କଲେ

(*a*) ଏମିଟର୍ ପାଠ୍ୟାଙ୍କ 6 ଆମ୍ପିୟର୍ ହେବ ।

(*b*) ଭୋଲ୍ଟମିଟର୍ ପାଠ୍ୟାଙ୍କ 6 ଭୋଲ୍ଟ୍ ହେବ ।

(*c*) *A* ଓ *B* ମଧ୍ୟରେ ସମୁହ ପ୍ରତିରୋଧ 2 ଓମ୍ ହେବ ।

(*d*) *B* ଓ *A* ମଧ୍ୟରେ ସମୁହ ପ୍ରତିରୋଧ 1 ଓମ୍ ହେବ ।

(A) (*a*), (*b*) ଓ (*c*) ଠିକ୍, (*d*) ଭୁଲ୍

(B) (*b*) ଓ (*c*) ଠିକ୍, (*a*) ଓ (*d*) ଭୁଲ୍

(C) (*a*), (*b*) ଓ (*d*) ଠିକ୍, (*c*) ଭୁଲ୍

(D) (*b*), (*c*) ଓ (*d*) ଭୁଲ୍, (*a*) ଠିକ୍

(*Space For Rough Work*)

20. Two electric-bulbs P and Q have fillament resistance in the ratio of 1 : 2. When they will be connected in parallel to the same source, the ratio of the powers dissipited by them shall respectively be

(A) 2 : 1

(B) 1 : 2

(C) 4 : 1

(D) 1 : 4

20. P ଓ Q ଦୁଇଟି ବଲ୍‌ବ୍‌ର ଫିଲାମେଣ୍ଟଗୁଡ଼ିକର ପ୍ରତିରୋଧର ଅନୁପାତ 1 : 2 ଅଟେ । ସେହି ଦୁଇ ବଲ୍‌ବ୍‌କୁ ସମାନ୍ତରାଳ ପରିପଥରେ ଏକା ବୈଦ୍ୟୁତିକ ଉତ୍ସ ସହ ସଂଯୋଗ କଲେ ସେମାନଙ୍କର ପାୱାର୍ କ୍ଷୟର ଯଥାକ୍ରମେ ଅନୁପାତ ହେବ

(A) 2 : 1

(B) 1 : 2

(C) 4 : 1

(D) 1 : 4

21. A house with mains supply of 220 volts uses five fans each of 100 watt, an electric iron of 500 watt, five bulbs each of 20 watt. The minimum capacity of the fuse wire to be used at the main switch of the house should be

(A) 15 Amperes

(B) 10 Amperes

(C) 5 Amperes

(D) 2·5 Amperes

21. ଗୋଟିଏ ଘରକୁ 220 ଭୋଲ୍‌ଟ୍‌ର ବିଦ୍ୟୁତ୍ ଯୋଗାଣ ହେଉଛି ସେହିଘରେ 100 ୱାଟ୍ ବିଶିଷ୍ଟ 5ଟି ପଂଖା, 500 ୱାଟ୍ ବିଶିଷ୍ଟ ଏକ ଇଲେକ୍‌ଟ୍ରିକ୍ ଇସ୍ତ୍ରୀ, 20 ୱାଟ୍ ବିଶିଷ୍ଟ 5ଟି ବଲ୍‌ବ୍ ବ୍ୟବହୃତ ହେବା-ପାଇଁ ସର୍ବନିମ୍ନ କେତେ ମାନର ଫ୍ୟୁଜ୍ ମୁଖ୍ୟ ସ୍ୱିଚ୍‌ରେ ବ୍ୟବହୃତ ହେବା ଆବଶ୍ୟକ ?

(A) 15 ଆମ୍ପିୟର୍

(B) 10 ଆମ୍ପିୟର୍

(C) 5 ଆମ୍ପିୟର୍

(D) 2·5 ଆମ୍ପିୟର୍

(*Space For Rough Work*)

(*Continued*)

22. (*a*) We come to know about the direction of electromagnetic field created around a current carrying conductor by the right -hand thumb rule.

(*b*) We come to know about the direction of motion of a current carrying conductor in a magnetic field by Fleming's right-hand rule.

(*c*) When current passes through a circular conductor, the direction of the magnetic field is along the tangent to the circular conductor.

(*d*) The fillament of electric bulb is made of tungsten metal.

(A) (*a*), (*b*) and (*d*) are correct, (*c*) is wrong

(B) (*a*) and (*c*) are correct, (*b*) and (*d*) are wrong

(C) (*b*) is wrong, (*a*), (*c*) and (*d*) are correct

(D) (*b*) and (*c*) are wrong, (*a*) and (*d*) are correct

22. (*a*) ଏକ ବିଦ୍ୟୁତ୍ ପ୍ରବାହୀ ତାରର ଚାରିପଟେ ଯେଉଁ ବିଦ୍ୟୁତ୍-ଚୁମ୍ବକୀୟ କ୍ଷେତ୍ର ସୃଷ୍ଟି ହୁଏ, ତାହାର ଦିଗ ଦକ୍ଷିଣ-ହସ୍ତ ବୃଦ୍ଧାଙ୍ଗୁଳି ନିୟମ ଦ୍ୱାରା ଜାଣିହୁଏ ।

(*b*) ଗୋଟିଏ ବିଦ୍ୟୁତ୍ ପ୍ରବାହୀ ତାରକୁ ଚୁମ୍ବକୀୟ କ୍ଷେତ୍ରରେ ରଖିଲେ ତାହା କେଉଁ ଦିଗକୁ ଗତି କରିବ, ତାହା ଫ୍ଲେମିଂଙ୍କର ଦକ୍ଷିଣ ହସ୍ତନିୟମ ଦ୍ୱାରା ଜାଣିହୁଏ ।

(*c*) ଯେତେବେଳେ ଏକ ବୃତ୍ତାକାର ପରିବାହୀ ମଧ୍ୟରେ ବିଦ୍ୟୁତ୍ ପ୍ରବାହିତ ହୁଏ, ସୃଷ୍ଟ ଚୁମ୍ବକୀୟ କ୍ଷେତ୍ରର ଦିଗ ବୃତ୍ତାକାର ପରିବାହୀର ସ୍ପର୍ଶକ ଦିଗରେ ଥାଏ ।

(*d*) ଇଲେକ୍ଟ୍ରିକ୍ ବଲ୍‌ବ୍‌ରେ ବ୍ୟବହୃତ ଫିଲାମେଣ୍ଟ ଟଙ୍ଗ୍‌ଷ୍ଟେନ୍ ଧାତୁରେ ତିଆରି ହୋଇଥାଏ ।

(A) (*a*), (*b*) ଓ (*d*) ଠିକ୍, (*c*) ଭୁଲ୍

(B) (*a*) ଓ (*c*) ଠିକ୍, (*b*) ଓ (*d*) ଭୁଲ୍

(C) (*b*) ଭୁଲ୍, (*a*), (*c*) ଓ (*d*) ଠିକ୍

(D) (*b*) ଓ (*c*) ଭୁଲ୍, (*a*) ଓ (*d*) ଠିକ୍

(Space For Rough Work)

23. When a resistance wire is connected to a battery of 12 volt, the ammeter reads 4 Amperes. Then the resistance of the wire would be

(A) 3 ohm

(B) 8 ohm

(C) 16 ohm

(D) 48 ohm

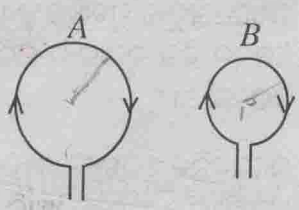
23. ଏକ ପ୍ରତିରୋଧ ତାରକୁ 12 ଭୋଲ୍‌ଟ୍ ବିଶିଷ୍ଟ ଏକ ବ୍ୟାଟେରୀ ସହ ସଂଯୋଗ କରିବାରୁ ପରିପଥରେ ଥିବା ଆମିଟର୍ ପାଠ୍ୟାଙ୍କ 4 ଆମ୍ପିୟର୍ ହେଲା । ତେବେ ତାରର ପ୍ରତିରୋଧ ହେବ

(A) 3 ଓମ୍

(B) 8 ଓମ୍

(C) 16 ଓମ୍

(D) 48 ଓମ୍

24. 

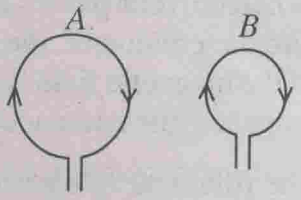
A and *B* are two circular conductors of the same material and thickness carry the same amount of current. The number of turns in '*B*' is twice that of *A*, but radius of '*B*' half of that of *A*. The ratio of the strength of the magnetic field at the center of '*B*' and that of '*A*' is

(A) 4 : 1

(B) 1 : 4

(C) 1 : 2

(D) 2 : 1

24. 

A ଓ *B* ଦୁଇଟି ବୃତ୍ତାକାର ପରିବାହୀ । ଉଭୟ ଏକା ଉପାଦାନ ଓ ମୋଟେଇ ବିଶିଷ୍ଟ ଏବଂ ସମାନ ପରିମାଣର ବିଦ୍ୟୁତ୍ ଉଭୟ ତାରରେ ପ୍ରବାହିତ ହେଉଛି । '*B*' ରେ '*A*'ର ଦୁଇ ଗୁଣ ତାର ଘେରା ଅଛି, ମାତ୍ର '*B*'ର ବ୍ୟାସାର୍ଦ୍ଧ '*A*'ର ବ୍ୟାସାର୍ଦ୍ଧର ଅଧା ଅଟେ । '*B*'ର କେନ୍ଦ୍ରରେ ସୃଷ୍ଟ ଚୁମ୍ବକୀୟ କ୍ଷେତ୍ରର ସାମର୍ଥ୍ୟ ଏବଂ '*A*'ର କେନ୍ଦ୍ରରେ ସୃଷ୍ଟ ଚୁମ୍ବକୀୟ କ୍ଷେତ୍ରର ସାମର୍ଥ୍ୟର ଅନୁପାତ ହେବ,

(A) 4 : 1

(B) 1 : 4

(C) 1 : 2

(D) 2 : 1

(*Space For Rough Work*)

$B = \frac{\mu_0 N I}{2r}$ $\quad N_B = 2N_A$ $\quad R_B = \frac{R_A}{2}$

$\frac{B_B}{B_A} = \frac{\frac{N_B}{R_B}}{\frac{N_A}{R_A}} = \frac{N_B \cdot R_A}{N_A R_B}$

$= \frac{2N_A \cdot R_A}{N_A \cdot R_A/2} = \frac{4}{1}$

(*Continued*)

25. (*a*) A fuse-wire is made of an alloy of copper and tin.

(*b*) The house-hold wirings are parallel ones.

(*c*) Out of the two bulbs, the one which has fillament resistance more, will glow more brightly.

(A) (*a*) and (*c*) are wrong, (*b*) is correct

(B) (*a*) and (*b*) are correct, (*c*) is wrong

(C) (*a*) is correct, (*b*) and (*c*) are wrong

(D) (*a*), (*b*) and (*c*) are correct

25. (*a*) ଫିଉଜ୍ ତାର ତମ୍ବା ଓ ଟିନ୍‌ର ଏକ ମିଶ୍ର-ଧାତୁରେ ନିର୍ମିତ ।

(*b*) ଗୃହ ୱାୟରିଂଗୁଡ଼ିକ ସମାନ୍ତରାଳ ପରିପଥ ଅଟେ ।

(*c*) ଦୁଇଟି ବୈଦ୍ୟୁତିକ ବତୀମଧ୍ୟରୁ ଯାହାର ଫିଲାମେଣ୍ଟର ପ୍ରତିରୋଧ ଅଧିକ, ତାହା ଅଧିକ ଉଜ୍ଜ୍ୱଳ ହୋଇ ଜଳିବ ।

(A) (*a*) ଓ (*c*) ଭୁଲ୍, (*b*) ଠିକ୍

(B) (*a*) ଓ (*b*) ଠିକ୍, (*c*) ଭୁଲ୍

(C) (*a*) ଠିକ୍, (*b*) ଓ (*c*) ଭୁଲ୍

(D) (*a*), (*b*) ଓ (*c*) ଠିକ୍

(*Space For Rough Work*)

PART – II
(CHEMISTRY)

26. Which sequence of the scientists associated with the sequential discovery of the sub-atomic particles is correct ?

(A) Thomson-Rutherford-Goldstein-Chadwick

(B) Rutherford-Bohr-Thomson-Millikan

(C) Thomson-Goldstein-Rutherford-Chadwick

(D) Millikan-Goldstein-Bohr-Rutherford.

26. ପରମାଣୁସ୍ଥ କଣିକାଗୁଡ଼ିକର କ୍ରମାନ୍ୱୟ ଆବିଷ୍କାର ସହ ଜଡ଼ିତ ବୈଜ୍ଞାନିକମାନଙ୍କର କେଉଁ କ୍ରମଟି ଠିକ୍ ?

(A) ଥମ୍‌ସନ୍–ରଥର୍‌ଫୋର୍ଡ୍–ଗୋଲ୍‌ଡ୍‌ଷ୍ଟାଇନ୍–ଚାଡ୍‌ୱିକ୍

(B) ରଥର୍‌ଫୋର୍ଡ୍–ବୋହର୍–ଥମ୍‌ସନ୍–ମିଲିକାନ୍

(C) ଥମ୍‌ସନ୍–ଗୋଲ୍‌ଡ୍‌ଷ୍ଟାଇନ୍–ରଥର୍‌ଫୋର୍ଡ୍–ଚାଡ୍‌ୱିକ୍

(D) ମିଲିକାନ୍–ଗୋଲ୍‌ଡ୍‌ଷ୍ଟାଇନ୍–ବୋହର୍–ରଥର୍‌ଫୋର୍ଡ୍

27. In the modern periodic table, the number of valency electrons of the elements

(A) increases along a group

(B) increases along a period

(C) decreases along a group

(D) decreases along a period

27. ଆଧୁନିକ ପର୍ଯ୍ୟାୟ ସାରଣୀରେ ମୌଳିକଗୁଡ଼ିକର ସଂଯୋଜକ ଇଲେକ୍ଟ୍ରନ୍ ସଂଖ୍ୟା

(A) ଏକ ଗ୍ରୁପ୍‌ରେ ବୃଦ୍ଧି ହୋଇଥାଏ

(B) ଏକ ପର୍ଯ୍ୟାୟରେ ବୃଦ୍ଧି ହୋଇଥାଏ

(C) ଏକ ଗ୍ରୁପ୍‌ରେ ହ୍ରାସ ହୋଇଥାଏ

(D) ଏକ ପର୍ଯ୍ୟାୟରେ ହ୍ରାସ ହୋଇଥାଏ

(Space For Rough Work)

(Continued)

28. How many electrons take part in the formation of a carbondioxide molecule ?

(A) 2

(B) 4

(C) 6

(D) 8

28. କାର୍ବନ୍‌ଡାଇଅକ୍‌ସାଇଡ୍ ଅଣୁ ଗଠନରେ କେତୋଟି ଇଲେକ୍‌ଟ୍ରନ୍ ଭାଗ ନେଇଥାନ୍ତି ?

(A) 2

(B) 4

(C) 6

(D) 8

29. The mass of 1·12 litres of carbon-dioxide at NTP would be

(A) 2·05 g

(B) 2·10 g

(C) 2·15 g

(D) 2·20 g

29. ମାନକ ଚାପ ଓ ତାପମାତ୍ରାରେ 1·12 ଲିଟର୍ କାର୍ବନ୍‌ଡାଇଅକ୍‌ସାଇଡ୍‌ର ବସ୍ତୁତ୍ୱ ହେବ

(A) 2·05 ଗ୍ରା.

(B) 2·10 ଗ୍ରା.

(C) 2·15 ଗ୍ରା.

(D) 2·20 ଗ୍ରା.

(Space For Rough Work)

30. (*a*) Electrovalent bonds are generally formed between the elements at the two ends of the modern periodic table.

(*b*) Covalent bonds are generally formed between the non-metals.

(*c*) Electrovalent compounds have low melting points and covalent compounds have high melting points.

(A) (*a*) and (*b*) are correct and (*c*) is wrong

(B) (*b*) and (*c*) are correct and (*a*) is wrong

(C) (*c*) and (*a*) are correct and (*b*) is wrong

(D) (*a*), (*b*) and (*c*) are correct

30. (*a*) ସାଧାରଣତଃ ଆଧୁନିକ ପର୍ଯ୍ୟାୟ ସାରଣୀର ଦୁଇ ପ୍ରାନ୍ତରେ ଥିବା ମୌଳିକଗୁଡ଼ିକ ମଧ୍ୟରେ ବିଦ୍ୟୁତ୍ ସଂଯୋଜ୍ୟ ବନ୍ଧ ଗଠିତ ହୋଇଥାଏ ।

(*b*) ସାଧାରଣତଃ ଅଧାତୁଗୁଡ଼ିକ ମଧ୍ୟରେ ସହସଂଯୋଜ୍ୟ ବନ୍ଧ ଗଠିତ ହୋଇଥାଏ ।

(*c*) ବିଦ୍ୟୁତ୍‌ସଂଯୋଜୀ ଯୌଗିକଗୁଡ଼ିକର ଗଳନାଙ୍କ କମ୍ ଥାଏ ଏବଂ ସହସଂଯୋଜୀ ଯୌଗିକ-ଗୁଡ଼ିକର ଗଳନାଙ୍କ ଅଧିକ ଥାଏ ।

(A) (*a*) ଓ (*b*) ଠିକ୍ ଏବଂ (*c*) ଭୁଲ୍

(B) (*b*) ଓ (*c*) ଠିକ୍ ଏବଂ (*a*) ଭୁଲ୍

(C) (*c*) ଓ (*a*) ଠିକ୍ ଏବଂ (*b*) ଭୁଲ୍

(D) (*a*), (*b*) ଓ (*c*) ଠିକ୍

(*Space For Rough Work*)

(*Continued*)

31. (*a*) Hydrogen has the highest calorific value as compared to that of other gaseous fuels.

(*b*) It can be obtained cheaply from water.

(*c*) It is not used as a domestic fuel due to its explosive nature.

(A) (*a*) and (*b*) are correct and (*c*) is wrong

(B) (*b*) and (*c*) are correct and (*a*) is wrong

(C) (*c*) and (*a*) are correct and (*b*) is wrong

(D) (*a*), (*b*) and (*c*) are correct

31. (*a*) ଅନ୍ୟାନ୍ୟ ଗ୍ୟାସୀୟ ଇନ୍ଧନ ତୁଳନାରେ ହାଇଡ୍ରୋଜେନ୍‌ର କ୍ୟାଲୋରୀମୂଲ୍ୟ ସର୍ବାଧିକ ଅଟେ ।

(*b*) ଶସ୍ତାରେ ଏହା ଜଳରୁ ପ୍ରସ୍ତୁତ କରା ଯାଇପାରିବ ।

(*c*) ଏହାର ବିସ୍ଫୋରକ ଧର୍ମଯୋଗୁଁ ଏହାକୁ ଘରୋଇ ଇନ୍ଧନ ରୂପେ ବ୍ୟବହାର କରାଯାଉ ନାହିଁ ।

(A) (*a*) ଓ (*b*) ଠିକ୍ ଏବଂ (*c*) ଭୁଲ୍

(B) (*b*) ଓ (*c*) ଠିକ୍ ଏବଂ (*a*) ଭୁଲ୍

(C) (*c*) ଓ (*a*) ଠିକ୍ ଏବଂ (*b*) ଭୁଲ୍

(D) (*a*), (*b*) ଓ (*c*) ଠିକ୍

(Space For Rough Work)

32. (*a*) One molecule of Ammonium phosphate.

(*b*) Two molecules of Potassium dichromate

(*c*) Three molecules of Sodium silicate

Considering the total number of atoms in each of the above cases, which one of the following sequences is correct ?

(A) *a b c*

(B) *b c a*

(C) *c a b*

(D) None of these

32. (*a*) ଏମୋନିୟମ୍ ଫସ୍‌ଫେଟ୍‌ର ଏକ ଅଣୁ

(*b*) ପୋଟାସିୟମ୍ ଡାଇକ୍ରୋମେଟ୍‌ର ଦୁଇଟି ଅଣୁ

(*c*) ସୋଡ଼ିୟମ୍ ସିଲିକେଟ୍‌ର ତିନୋଟି ଅଣୁ

ଉପରୋକ୍ତ ପ୍ରତ୍ୟେକ କ୍ଷେତ୍ରରେ ମୋଟ ପରମାଣୁ ସଂଖ୍ୟାକୁ ଭିତ୍ତି କରି ନିମ୍ନୋକ୍ତ ମଧ୍ୟରୁ କେଉଁ କ୍ରମଟି ଠିକ୍ ?

(A) *a b c*

(B) *b c a*

(C) *c a b*

(D) ଏଥିମଧ୍ୟରୁ କୌଣସିଟି ନୁହେଁ

(*Space For Rough Work*)

(*Continued*)

33. (*a*) Air pollution causes acid rain.

(*b*) Acid rain causes water pollution.

(*c*) Water pollution causes soil pollution.

(A) (*a*) and (*b*) are correct and (*c*) is wrong

(B) (*b*) and (*c*) are correct and (*a*) is wrong

(C) (*c*) and (*a*) are correct and (*b*) is wrong

(D) (*a*), (*b*) and (*c*) are correct

33. (*a*) ବାୟୁ ପ୍ରଦୂଷଣ ଯୋଗୁଁ ଅମ୍ଳବର୍ଷା ହୁଏ ।

(*b*) ଅମ୍ଳବର୍ଷା ଯୋଗୁଁ ଜଳ ପ୍ରଦୂଷଣ ହୁଏ ।

(*c*) ଜଳପ୍ରଦୂଷଣ ଯୋଗୁଁ ମୃତ୍ତିକା ପ୍ରଦୂଷଣ ହୁଏ ।

(A) (*a*) ଓ (*b*) ଠିକ୍ ଏବଂ (*c*) ଭୁଲ୍

(B) (*b*) ଓ (*c*) ଠିକ୍ ଏବଂ (*a*) ଭୁଲ୍

(C) (*c*) ଓ (*a*) ଠିକ୍ ଏବଂ (*b*) ଭୁଲ୍

(D) (*a*), (*b*) ଓ (*c*) ଠିକ୍

34. The ore of which metal is not suitable for electrolytic reduction ?

(A) Mg

(B) Zn

(C) Al

(D) Li

34. କେଉଁ ଧାତୁର ଓର୍ ବୈଦ୍ୟୁତିକ ବିଜାରଣ ପାଇଁ ଅନୁପଯୁକ୍ତ ?

(A) Mg

(B) Zn

(C) Al

(D) Li

(*Space For Rough Work*)

35. Which one yields least number of hydrogen ions in aqueous solution ?

(A) Carbonic acid

(B) Sulphuric acid

(C) Nitric acid

(D) Hydro-chloric acid

35. କେଉଁଟି ଜଳୀୟ ଦ୍ରବଣରେ ସର୍ବନିମ୍ନ ସଂଖ୍ୟକ ହାଇଡ୍ରୋଜେନ୍ ଆୟନ୍ ସୃଷ୍ଟି କରେ ?

(A) କାର୍ବୋନିକ୍ ଏସିଡ୍

(B) ସଲ୍‌ଫୁରିକ୍ ଏସିଡ୍

(C) ନାଇଟ୍ରିକ୍ ଏସିଡ୍

(D) ହାଇଡ୍ରୋକ୍ଲୋରିକ୍ ଏସିଡ୍ ।

36. (*a*) Sodium Chloride is available as a mineral.

(*b*) Sodium Chloride is used as a medicine.

(*c*) Sodium Chloride is available only from sea-water.

(A) (*a*) and (*b*) are correct and (*c*) is wrong

(B) (*b*) and (*c*) are correct and (*a*) is wrong

(C) (*c*) and (*a*) are correct and (*b*) is wrong

(D) (*a*) , (*b*) and (*c*) are correct

36. (*a*) ସୋଡ଼ିୟମ୍ କ୍ଲୋରାଇଡ୍ ଖଣିଜରୂପେ ଉପଲବ୍ଧ ହୋଇଥାଏ ।

(*b*) ସୋଡ଼ିୟମ୍ କ୍ଲୋରାଇଡ୍ ଔଷଧରୂପେ ବ୍ୟବହୃତ ହୁଏ ।

(*c*) ସୋଡ଼ିୟମ୍ କ୍ଲୋରାଇଡ୍ କେବଳ ସମୁଦ୍ର ଜଳରୁ ଉପଲବ୍ଧ ହୋଇଥାଏ ।

(A) (*a*) ଓ (*b*) ଠିକ୍ ଏବଂ (*c*) ଭୁଲ୍

(B) (*b*) ଓ (*c*) ଠିକ୍ ଏବଂ (*a*) ଭୁଲ୍

(C) (*c*) ଓ (*a*) ଠିକ୍ ଏବଂ (*b*) ଭୁଲ୍

(D) (*a*) , (*b*) ଓ (*c*) ଠିକ୍

(*Space For Rough Work*)

(*Continued*)

37. On heating 10g of calcium carbonate how much carbondioxide at NTP would be formed ?

(A) 22·4 l

(B) 11·2 l

(C) 4·48 l

(D) 2·24 l

38. Which one was discovered by using perforated cathode in the crooke's tube ?

(A) Electron

(B) Proton

(C) Neutron

(D) Nucleus

37. 10 ଗ୍ରା. କାଲ୍‌ସିୟମ୍ କାର୍ବୋନେଟ୍‌କୁ ଉତ୍ତପ୍ତ କଲେ ମାନକ ତାପ ଓ ତାପ ମାତ୍ରାରେ କେତେ କାର୍ବନ୍-ଡାଇଅକ୍‌ସାଇଡ୍ ଉତ୍ପନ୍ନ ହେବ ?

(A) 22·4 ଲି.

(B) 11·2 ଲି.

(C) 4·48 ଲି.

(D) 2·24 ଲି.

38. କ୍ରୁକ୍‌ଙ୍କ ନଳୀରେ ରନ୍ଧ୍ରଯୁକ୍ତ କ୍ୟାଥୋଡ୍ ବ୍ୟବହାର କରିବାରୁ କେଉଁଟି ଆବିଷ୍କୃତ ହେଲା ?

(A) ଇଲେକ୍ଟ୍ରନ୍

(B) ପ୍ରୋଟନ୍

(C) ନ୍ୟୁଟ୍ରନ୍

(D) ନ୍ୟୁକ୍ଲିୟସ୍

(*Space For Rough Work*)

39. Which one belongs to another class ?

(A) Bitumen/Asphalt

(B) Pitch/Coaltar

(C) Coal

(D) Coke

39. କେଉଁଟି ଅନ୍ୟ ଶ୍ରେଣୀଭୁକ୍ତ ?

(A) ବିଟୁମେନ୍/ଆସ୍‌ଫାଲ୍‌ଟ୍

(B) ପିଚ୍/ଆଲକ୍‌ତାରା

(C) କୋଇଲା

(D) କୋକ୍

40. Which one is different from the other three ?

(A) Lime

(B) Lime stone

(C) Quick lime

(D) Slaked lime

40. କେଉଁଟି ଅନ୍ୟ ତିନୋଟି ଠାରୁ ଭିନ୍ନ ?

(A) ଚୂନ

(B) ଚୂନପଥର

(C) କଲିଚୂନ

(D) ଶମିତ ଚୂନ

(*Space For Rough Work*)

(*Continued*)

41. The symbol of which one is different from that of the other three according to a certain principle ?

(A) Chlorine

(B) Cadmium

(C) Caesium

(D) Chromium

41. ଏକ ନିର୍ଦ୍ଦିଷ୍ଟ ନିୟମ ଅନୁଯାୟୀ କେଉଁଟିର ପ୍ରତୀକ ଅନ୍ୟ ତିନୋଟିର ପ୍ରତୀକଠାରୁ ଭିନ୍ନ ?

(A) କ୍ଲୋରିନ୍

(B) କାଡ୍‌ମିୟମ୍

(C) ସିଜିୟମ୍

(D) କ୍ରୋମିୟମ୍

42. One milligram of hydrogen will contain how many atoms ?

(A) $6{\cdot}023 \times 10^{20}$

(B) $6{\cdot}023 \times 10^{21}$

(C) $6{\cdot}023 \times 10^{22}$

(D) $6{\cdot}023 \times 10^{23}$

42. ଏକ ମିଲିଗ୍ରାମ୍ ହାଇଡ୍ରୋଜେନ୍‌ରେ କେତୋଟି ପରମାଣୁ ଥିବ ?

(A) $6{\cdot}023 \times 10^{20}$

(B) $6{\cdot}023 \times 10^{21}$

(C) $6{\cdot}023 \times 10^{22}$

(D) $6{\cdot}023 \times 10^{23}$

(*Space For Rough Work*)

43. (*a*) Carbonates of Ca and Mg cause hardness of water.

(*b*) Lime removes only temporary hardness

(*c*) Washing soda removes only permanent hardness.

(A) (*a*) is correct and (*b*) and (*c*) are wrong

(B) (*b*) is correct and (*c*) and (*a*) are wrong

(C) (*c*) is correct and (*a*) and (*b*) are wrong

(D) (*a*), (*b*) and (*c*) are wrong

43. (*a*) କାଲ୍‌ସିୟମ୍ ଓ ମାଗ୍ନେସିୟମ୍‌ର କାର୍ବୋନେଟ୍ ଯୋଗୁଁ ଜଳ ଖର ହୋଇଥାଏ

(*b*) ଚୂନ କେବଳ ଅସ୍ଥାୟୀ ଖରତ୍ୱ ଦୂର କରେ ।

(*c*) ଲୁଗାଧୁଆସୋଡ଼ା କେବଳ ସ୍ଥାୟୀ ଖରତ୍ୱ ଦୂର କରେ

(A) (*a*) ଠିକ୍ ଏବଂ (*b*) ଓ (*c*) ଭୁଲ୍

(B) (*b*) ଠିକ୍ ଏବଂ (*c*) ଓ (*a*) ଭୁଲ୍

(C) (*c*) ଠିକ୍ ଏବଂ (*a*) ଓ (*b*) ଭୁଲ୍

(D) (*a*), (*b*) ଓ (*c*) ଭୁଲ୍

44. The formula of a metallic oxide is M_2O_3. The metal would belong to which group of the modern periodic table ?

(A) IA

(B) IIA

(C) IIIA

(D) IVA

44. ଏକ ଧାତବ ଅକ୍ସାଇଡ୍‌ର ସଂକେତ M_2O_3 ଅଟେ । ଆଧୁନିକ ପର୍ଯ୍ୟାୟ ସାରଣୀରେ ଉକ୍ତ ଧାତୁଟି କେଉଁ ଗ୍ରୁପ୍‌ର ହୋଇଥିବ ?

(A) IA

(B) IIA

(C) IIIA

(D) IVA

(*Space For Rough Work*)

45. Which one of the following is a neutralisation chemical reaction ?

(A) $NaOH + HCl = NaCl + H_2O$

(B) $NaCl + AgNO_3 = AgCl + NaNO_3$

(C) $Zn + H_2SO_4 = ZnSO_4 + H_2$

(D) $Fe + CuSO_4 = FeSO_4 + Cu$

45. ନିମ୍ନୋକ୍ତ ମଧ୍ୟରୁ କେଉଁଟି ପ୍ରଶମନ ରାସାୟନିକ ପ୍ରତିକ୍ରିୟା ଅଟେ ?

(A) $NaOH + HCl = NaCl + H_2O$

(B) $NaCl + AgNO_3 = AgCl + NaNO_3$

(C) $Zn + H_2SO_4 = ZnSO_4 + H_2$

(D) $Fe + CuSO_4 = FeSO_4 + Cu$

46. Out of the following in which case chemical change doesn't occur ?

(A) Fire wood oven is glowing

(B) Kerosene stove is glowing

(C) Electric oven is glowing

(D) Gobargas oven is glowing

46. ନିମ୍ନୋକ୍ତ ମଧ୍ୟରୁ କେଉଁ କ୍ଷେତ୍ରରେ ରାସାୟନିକ ପରିବର୍ତ୍ତନ ସଂଘଟିତ ହୁଏ ନାହିଁ ?

(A) କାଠ ଚୁଲି ଜଳୁଅଛି

(B) କିରୋସିନ ଷ୍ଟୋଭ୍ ଜଳୁଅଛି

(C) ଇଲେକ୍ଟ୍ରିକ୍ ଚୁଲି ଜଳୁଅଛି

(D) ଗୋବରଗ୍ୟାସ୍ ଚୁଲି ଜଳୁଅଛି

(Space For Rough Work)

47. $Cu + I_2 = CuI_2$

(*a*) This is a combination reaction.

(*b*) This is a redox reaction.

(*c*) This is not a redox reaction.

(A) (*a*) and (*b*) are correct and (*c*) is wrong

(B) (*a*) and (*c*) are correct and (*b*) is wrong

(C) only (*a*) is correct

(D) only (*b*) is correct

48. ${}^{m}_{n}E$ where

'E' is an element and '*m*' and '*n*' carry their usual meanings. E will have

(A) *m* number of protons and *n* number of neutrons

(B) *n* number of protons and *m* number of neutrons

(C) *m* number of protons and $(n - m)$ number of neutrons

(D) *n* number of protons and $(m - n)$ number of neutrons

47. $Cu + I_2 = CuI_2$

(*a*) ଏହା ଏକ ସଂଶ୍ଳେଷଣ ପ୍ରତିକ୍ରିୟା ଅଟେ ।

(*b*) ଏହା ଏକ ରେଡ଼କ୍ସ୍ ପ୍ରତିକ୍ରିୟା ଅଟେ ।

(*c*) ଏ ହା ଏକ ରେଡ଼କ୍ସ୍ ପ୍ରତିକ୍ରିୟା ନୁହେଁ ।

(A) (*a*) ଓ (*b*) ଠିକ୍ ଏବଂ (*c*) ଭୁଲ୍

(B) (*a*) ଓ (*c*) ଠିକ୍ ଏବଂ (*b*) ଭୁଲ୍

(C) କେବଳ (*a*) ଠିକ୍

(D) କେବଳ (*b*) ଠିକ୍

48. ${}^{m}_{n}E$ ଯେଉଁଠି

'E' ଏକ ମୌଳିକ ଅଟେ ଏବଂ '*m*' ଓ '*n*' ସେମାନଙ୍କର ସ୍ୱାଭାବିକ ଅର୍ଥ ବହନ କରନ୍ତି । E ରେ ଥିବ

(A) *m* ସଂଖ୍ୟକ ପ୍ରୋଟନ୍ ଏବଂ *n* ସଂଖ୍ୟକ ନ୍ୟୁଟ୍ରନ୍

(B) *n* ସଂଖ୍ୟକ ପ୍ରୋଟନ୍ ଏବଂ *m* ସଂଖ୍ୟକ ନ୍ୟୁଟ୍ରନ୍

(C) *m* ସଂଖ୍ୟକ ପ୍ରୋଟନ୍ ଏବଂ $(n - m)$ ସଂଖ୍ୟକ ନ୍ୟୁଟ୍ରନ୍

(D) *n* ସଂଖ୍ୟକ ପ୍ରୋଟନ୍ ଏବଂ $(m - n)$ ସଂଖ୍ୟକ ନ୍ୟୁଟ୍ରନ୍

(*Space For Rough Work*)

(*Continued*)

49. (*a*) Nichrome is a non-ferrous alloy.

(*b*) An amalgam is an alloy

(*c*) 22 carat gold is an alloy.

(A) (*a*) and (*b*) are correct and (*c*) is wrong

(B) (*b*) and (*c*) are correct and (*a*) is wrong

(C) (*c*) and (*a*) are correct and (*b*) is wrong

(D) (*a*) , (*b*) and (*c*) are correct

49. (*a*) ନିକ୍ରୋମ୍ ଏକ ଲୌହହୀନ ଏଲୟ ଅଟେ ।

(*b*) ଆମାଲ୍‌ଗାମ୍ ଏଲୟ ଅଟେ ।

(*c*) 22 କ୍ୟାରେଟ୍ ସୁନା ଏକ ଏଲୟ ଅଟେ ।

(A) (*a*) ଓ (*b*) ଠିକ୍ ଏବଂ (*c*) ଭୁଲ୍

(B) (*b*) ଓ (*c*) ଠିକ୍ ଏବଂ (*a*) ଭୁଲ୍

(C) (*c*) ଓ (*a*) ଠିକ୍ ଏବଂ (*b*) ଭୁଲ୍

(D) (*a*) , (*b*) ଓ (*c*) ଠିକ୍

50. (*a*) LPG is a primary fuel

(*b*) CNG is a secondary fuel

(*c*) Kerosene is a primary fuel

(A) (*a*) and (*c*) are correct and (*b*) is wrong

(B) (*b*) is correct and (*a*) and (*c*) are wrong

(C) (*a*) , (*b*) and (*c*) are correct

(D) (*a*) , (*b*) and (*c*) are worng

50. (*a*) LPG ଏକ ପ୍ରାଥମିକ ଇନ୍ଧନ ଅଟେ ।

(*b*) CNG ଏକ ଦ୍ୱିତୀୟକ ଇନ୍ଧନ ଅଟେ ।

(*c*) କିରୋସିନ୍ ଏକ ପ୍ରାଥମିକ ଇନ୍ଧନ ଅଟେ ।

(A) (*a*) ଓ (*c*) ଠିକ୍ ଏବଂ (*b*) ଭୁଲ୍

(B) (*b*) ଠିକ୍ ଏବଂ (*a*) ଓ (*c*) ଭୁଲ୍

(C) (*a*) , (*b*) ଓ (*c*) ଠିକ୍

(D) (*a*) , (*b*) ଓ (*c*) ଭୁଲ୍

(Space For Rough Work)

PART – III

(MATHEMATICS)

[Take π as $\frac{22}{7}$ if nothing else is said about it.]

[ଅନ୍ୟ କୌଣସି ସୂଚନା ନ ଥିଲେ π ଲାଗି $\frac{22}{7}$ ବ୍ୟବହାର କର ।]

51. Which of the following is equal to $\left(x^{\frac{2}{3}} - x^{-\frac{2}{3}}\right)\left(x^{-\frac{4}{3}} + 1 + x^{\frac{4}{3}}\right)$?

(A) $\frac{1-x^4}{x^2}$

(B) $\frac{x^4-1}{x^2}$

(C) $\frac{1+x^2}{x^4}$

(D) $\frac{1-x^2}{x^4}$

51. ନିମ୍ନସ୍ଥ କେଉଁଟି $\left(x^{\frac{2}{3}} - x^{-\frac{2}{3}}\right)\left(x^{-\frac{4}{3}} + 1 + x^{\frac{4}{3}}\right)$ ସହ ସମାନ ?

(A) $\frac{1-x^4}{x^2}$

(B) $\frac{x^4-1}{x^2}$

(C) $\frac{1+x^2}{x^4}$

(D) $\frac{1-x^2}{x^4}$

(Space For Rough Work)

(*Continued*)

52. Which of the following is equal to $\frac{x^{-1}y^{-1}+y^{-1}z^{-1}+z^{-1}x^{-1}}{x+y+z}$?

(A) $x^{-1}y^{-1}z^{-1}$

(B) $xy^{-1}z^{-1}$

(C) $x^{-1}y^{-1}z$

(D) $x^{-1}yz^{-1}$

52. ନିମ୍ନସ୍ଥ କେଉଁଟି $\frac{x^{-1}y^{-1}+y^{-1}z^{-1}+z^{-1}x^{-1}}{x+y+z}$ ସହ ସମାନ ?

(A) $x^{-1}y^{-1}z^{-1}$

(B) $xy^{-1}z^{-1}$

(C) $x^{-1}y^{-1}z$

(D) $x^{-1}yz^{-1}$

53. For what value of x $\sqrt[3]{\left(\frac{p}{q}\right)}=\left(\frac{q}{p}\right)^{1-2x}$?

(A) $\frac{2}{3}$

(B) $\frac{3}{2}$

(C) $\frac{4}{5}$

(D) $\frac{5}{4}$

53. x ର କେଉଁ ମାନ ପାଇଁ $\sqrt[3]{\left(\frac{p}{q}\right)}=\left(\frac{q}{p}\right)^{1-2x}$?

(A) $\frac{2}{3}$

(B) $\frac{3}{2}$

(C) $\frac{4}{5}$

(D) $\frac{5}{4}$

(Space For Rough Work)

54. For what integral value of x,

$$2^{2x+1} - 9 \times 2^x + 10 = 0 \text{ ?}$$

(A) 2

(B) -2

(C) 1

(D) -1

54. x ର କେଉଁ ପୂର୍ଣ୍ଣସଂଖ୍ୟା ମାନ ଲାଗି

$$2^{2x+1} - 9 \times 2^x + 10 = 0 \text{ ?}$$

(A) 2

(B) -2

(C) 1

(D) -1

55. If $a^m = b^n = p$ and $b^x = a^y = q$, then which of the following is true ?

(A) $pq = mn + xy$

(B) $pq = mn - xy$

(C) $mx - ny = 0$

(D) $mx + ny = 0$

55. $a^m = b^n = p$ ଏବଂ $b^x = a^y = q$, ହେଲେ, ନିମ୍ନସ୍ଥ କେଉଁଟି ସତ୍ୟ ?

(A) $pq = mn + xy$

(B) $pq = mn - xy$

(C) $mx - ny = 0$

(D) $mx + ny = 0$

(Space For Rough Work)

(Continued)

56. What is the smallest value of the polynomial

$4x^2 + 6x - 3$?

(A) $5\frac{1}{4}$

(B) $-5\frac{1}{4}$

(C) $3\frac{1}{2}$

(D) $-3\frac{1}{2}$

56. $4x^2 + 6x - 3$ ପଲିନୋମିଆଲ୍‌ର କ୍ଷୁଦ୍ରତମ ମାନ କେତେ ?

(A) $5\frac{1}{4}$

(B) $-5\frac{1}{4}$

(C) $3\frac{1}{2}$

(D) $-3\frac{1}{2}$

57. For which of the following values of 'p', $4 + px + 2x^2 + x^3$ leaves a remaider '$2p$' when divided by $2x + 1$?

(A) $2\frac{3}{8}$

(B) $1\frac{3}{8}$

(C) $2\frac{3}{4}$

(D) $1\frac{3}{4}$

57. p ର ନିମ୍ନସ୍ଥ କେଉଁ ମାନ ପାଇଁ $4+px+2x^2+x^3$ କୁ $2x+1$ ଦ୍ୱାରା ଭାଗକଲେ $2p$ ଭାଗଶେଷ ରହିବ ?

(A) $2\frac{3}{8}$

(B) $1\frac{3}{8}$

(C) $2\frac{3}{4}$

(D) $1\frac{3}{4}$

(Space For Rough Work)

58. For what value of 'k',

$$x^3 - 5x^2 + kx - 2$$

has $x - 2$ as a factor of it ?

(A) 4

(B) 7

(C) -4

(D) -7

58. k ର କେଉଁ ମାନ ପାଇଁ

$x^3 - 5x^2 + kx - 2$ ର $x - 2$ ଏକ ଉତ୍ପାଦକ ହେବ ?

(A) 4

(B) 7

(C) -4

(D) -7

59. If $4x^3 - bx^2 + x - c$ leaves remainders 0 and 30 when divided by $x + 1$ and $2x - 3$ respectively, what is the value of $c - b$?

(A) 11

(B) 9

(C) -11

(D) -9

59. ଯଦି $4x^3 - bx^2 + x - c$ କୁ $x + 1$ ଓ $2x - 3$ ଦ୍ୱାରା ଭାଗ କଲେ, ଭାଗଶେଷ ଯଥାକ୍ରମେ 0 ଓ 30 ରହେ, ତେବେ $c - b$ ର ମାନ କେତେ ?

(A) 11

(B) 9

(C) -11

(D) -9

(Space For Rough Work)

(Continued)

60. If $x + a$ is a common factor of $x^2 + px + q$ and $x^2 + mx + n$, then what is the value of 'a' ?

(A) $\frac{n+q}{m-p}$

(B) $\frac{n-q}{m+p}$

(C) $\frac{n+q}{m+p}$

(D) $\frac{n-q}{m-p}$

60. $x^2 + px + q$ ଓ $x^2 + mx + n$ ର $x + a$ ଏକ ସାଧାରଣ ଉତ୍ପାଦକ ହେଲେ, a ର ମାନ କେତେ ?

(A) $\frac{n+q}{m-p}$

(B) $\frac{n-q}{m+p}$

(C) $\frac{n+q}{m+p}$

(D) $\frac{n-q}{m-p}$

61. $f(x) = 2x + 3,\ x \in R.$
What is the value of 'a' if $f(a) = -5$

(A) 1

(B) -2

(C) 3

(D) -4

61. $f(x) = 2x + 3,\ x \in R$ ।
a ର କେଉଁ ମାନ ପାଇଁ $f(a) = -5$ ହେବ ?

(A) 1

(B) -2

(C) 3

(D) -4

(Space For Rough Work)

62. Given $f: x \rightarrow$ highest prime factor of x. Which of the following is the range of 'f', when the domain is $\{12, 13, 14, 15, 16\}$?

(A) $\{2, 3, 5, 7, 13\}$

(B) $\{6, 13, 7, 15, 2\}$

(C) $\{3, 13, 7, 5, 8\}$

(D) $\{3, 1, 7, 5, 2\}$

63. Which of the following values of x and y do not satisfy the equation $\log_a x - 2y = 0$ when $a = 2$?

(A) $x = 1, \ y = 0$

(B) $x = 4, \ y = 1$

(C) $x = 16, \ y = 2$

(D) $x = 32, \ y = 4$

62. ଦତ୍ତ ଅଛି $f: x \rightarrow$ x ର ବୃହତ୍ତମ ମୌଳିକ ଗୁଣନୀୟକ । ନିମ୍ନସ୍ଥ କେଉଁଟି f ର ବିସ୍ତାର, ଯଦି ପରିସର $\{12, 13, 14, 15, 16\}$ ହୁଏ ?

(A) $\{2, 3, 5, 7, 13\}$

(B) $\{6, 13, 7, 15, 2\}$

(C) $\{3, 13, 7, 5, 8\}$

(D) $\{3, 1, 7, 5, 2\}$

63. x ଓ y ର ନିମ୍ନସ୍ଥ କେଉଁ ମାନ ଦ୍ୱାରା ସମୀକରଣ $\log_a x - 2y = 0$ ସିଦ୍ଧ ହୁଏ ନାହିଁ ଯେଉଁଠି $a = 2$?

(A) $x = 1, \ y = 0$

(B) $x = 4, \ y = 1$

(C) $x = 16, \ y = 2$

(D) $x = 32, \ y = 4$

(Space For Rough Work)

(Continued)

64. If $\log_{10} p^2 = a - \log_{10} q^3$, then what is the value of p^{-2} ?

(A) $\frac{q^3}{10^{-a}}$

(B) $q^3 \cdot 10^{-a}$

(C) $q^3 + 10^{-a}$

(D) $q^3 - 10^{-a}$

64. $\log_{10} p^2 = a - \log_{10} q^3$ ହେଲେ, p^{-2}ର ମାନ କେତେ ?

(A) $\frac{q^3}{10^{-a}}$

(B) $q^3 \cdot 10^{-a}$

(C) $q^3 + 10^{-a}$

(D) $q^3 - 10^{-a}$

65. If $x^2 - 7xy + y^2 = 0$, then which of the following is equal to $\frac{1}{2}(\log x + \log y)$?

(A) $\log(x - y)^3$

(B) $\log(x + y)^3$

(C) $\log\frac{x - y}{3}$

(D) $\log\frac{x + y}{3}$

65. $x^2 - 7xy + y^2 = 0$ ହେଲେ, ନିମ୍ନସ୍ଥ କେଉଁଟି $\frac{1}{2}(\log x + \log y)$ ସହ ସମାନ ?

(A) $\log(x - y)^3$

(B) $\log(x + y)^3$

(C) $\log\frac{x - y}{3}$

(D) $\log\frac{x + y}{3}$

(Space For Rough Work)

66. If $\log 2 = a$ and $\log 3 = b$, what is the value of $\log 1\frac{1}{5}$?

(A) $2a + b - 1$

(B) $2a - b + 1$

(C) $a - 2b + 1$

(D) $a + 2b - 1$

66. $\log 2 = a$ ଏବଂ $\log 3 = b$ ହେଲେ, $\log 1\frac{1}{5}$ ର ମାନ କେତେ ?

(A) $2a + b - 1$

(B) $2a - b + 1$

(C) $a - 2b + 1$

(D) $a + 2b - 1$

67. Which of the following is equal to $\frac{\log_3 25 + \log_3 50 - \log_3 2}{\log_3 125}$?

(A) $\frac{4}{5}$

(B) $\frac{3}{4}$

(C) $1\frac{1}{3}$

(D) $1\frac{1}{4}$

67. ନିମ୍ନସ୍ଥ କେଉଁଟି $\frac{\log_3 25 + \log_3 50 - \log_3 2}{\log_3 125}$ ସହ ସମାନ ?

(A) $\frac{4}{5}$

(B) $\frac{3}{4}$

(C) $1\frac{1}{3}$

(D) $1\frac{1}{4}$

(*Space For Rough Work*)

(*Continued*)

68. Given that $\log 8 = p$ and $\log 9 = q$. Which of the following cannot be determined using the above data ?

(A) log 15

(B) log 16

(C) log 17

(D) log 18

68. ଦତ୍ତ ଅଛି, $\log 8 = p$ ଓ $\log 9 = q$ । ଉପରିସ୍ଥ ତଥ୍ୟକୁ ବ୍ୟବହାର କରି ନିମ୍ନସ୍ଥ କେଉଁଟି ନିର୍ଣ୍ଣୟ କରାଯାଇ ପାରିବ ନାହିଁ ?

(A) log 15

(B) log 16

(C) log 17

(D) log 18

69. If $a : b = 5 : 3$, what is the value of $(5a + 8b) : (6a - 7b)$?

(A) 40 : 11

(B) 49 : 9

(C) 51 : 7

(D) 55 : 6

69. $a : b = 5 : 3$ ହେଲେ, $(5a + 8b) : (6a - 7b)$ ର ମାନ କେତେ ?

(A) 40 : 11

(B) 49 : 9

(C) 51 : 7

(D) 55 : 6

(Space For Rough Work)

70. If $(4x^2 + xy) : (3xy - y^2) = 12 : 5$, what is $\frac{x}{y}$ equal to ?

(A) $\frac{3}{4}$ or $\frac{4}{5}$

(B) $\frac{4}{5}$ or $\frac{5}{6}$

(C) $\frac{5}{6}$ or $\frac{6}{7}$

(D) $\frac{6}{7}$ or $\frac{7}{8}$

70. $(4x^2 + xy) : (3xy - y^2) = 12 : 5$ ହେଲେ, $\frac{x}{y}$ ର ମାନ କେତେ ?

(A) $\frac{3}{4}$ ବା $\frac{4}{5}$

(B) $\frac{4}{5}$ ବା $\frac{5}{6}$

(C) $\frac{5}{6}$ ବା $\frac{6}{7}$

(D) $\frac{6}{7}$ ବା $\frac{7}{8}$

71. The ratio between two numbers is 5 : 6 and their L.C.M. is 150. What is the difference between the numbers ?

(A) 5

(B) 7

(C) 8

(D) 10

71. ଦୁଇଟି ସଂଖ୍ୟା ମଧ୍ୟରେ ଅନୁପାତ 5 : 6 । ସେ ସଂଖ୍ୟା ଦୁଇଟିର ଲ:ସା:ଗୁ: 150 ହେଲେ, ସଂଖ୍ୟା ଦୁଇଟି ମଧ୍ୟରେ ପାର୍ଥକ୍ୟ କେତେ ?

(A) 5

(B) 7

(C) 8

(D) 10

(Space For Rough Work)

(Continued)

72. A bag contains one-rupee coins, 50 paise coins and 20 paise coins and their numbers are in the ratio 3 : 5 : 8. If the total money in the bag is 142 rupees, what is the total number of coins in the bag ?

(A) 240

(B) 260

(C) 300

(D) 320

72. ଗୋଟିଏ ଥଳିରେ ଏକଟଙ୍କା ମୁଦ୍ରା, 50 ପଇସି ମୁଦ୍ରା ଓ 20 ପଇସି ମୁଦ୍ରାର ସଂଖ୍ୟାର ଅନୁପାତ 3 : 5 : 8 । ଥଳିରେ ଯଦି ମୋଟ 142 ଟଙ୍କା ମୂଲ୍ୟର ମୁଦ୍ରା ଥାଏ, ତେବେ ମୁଦ୍ରାଗୁଡ଼ିକର ମୋଟ ସଂଖ୍ୟା କେତେ ?

(A) 240

(B) 260

(C) 300

(D) 320

73. If $\frac{m+n}{m+3n}=\frac{2}{3}$, what is the value of $\frac{2n^2}{3m^2+mn}$?

(A) $\frac{1}{7}$

(B) $\frac{1}{9}$

(C) $\frac{1}{12}$

(D) $\frac{1}{15}$

73. $\frac{m+n}{m+3n}=\frac{2}{3}$ ହେଲେ, $\frac{2n^2}{3m^2+mn}$ ର ମାନ କେତେ ?

(A) $\frac{1}{7}$

(B) $\frac{1}{9}$

(C) $\frac{1}{12}$

(D) $\frac{1}{15}$

(Space For Rough Work)

74. What is the rational equivalence of $0\cdot3\overline{21}$

(A) $\frac{47}{135}$

(B) $\frac{49}{145}$

(C) $\frac{51}{155}$

(D) $\frac{53}{165}$

74. $0\cdot3\overline{21}$ ର ପରିମେୟ ମାନ କେତେ ?

(A) $\frac{47}{135}$

(B) $\frac{49}{145}$

(C) $\frac{51}{155}$

(D) $\frac{53}{165}$

75. Which of the following does not lie between $\frac{3}{4}$ and $\frac{4}{5}$

(A) $\frac{31}{40}$

(B) $\frac{49}{60}$

(C) $\frac{61}{80}$

(D) $\frac{91}{120}$

75. ନିମ୍ନସ୍ଥ କେଉଁଟି $\frac{3}{4}$ ଓ $\frac{4}{5}$ ମଧ୍ୟବର୍ତ୍ତୀ ନୁହେଁ ?

(A) $\frac{31}{40}$

(B) $\frac{49}{60}$

(C) $\frac{61}{80}$

(D) $\frac{91}{120}$

(Space For Rough Work)

(Continued)

76. Which of the following is a rational number ?

(A) 1·0233233323333 .....

(B) 2·3055055055 .....

(C) $3+\sqrt{2}$

(D) $2\pi + 1$

76. ନିମ୍ନସ୍ଥ କେଉଁଟି ଏକ ପରିମେୟ ସଂଖ୍ୟା ?

(A) 1·0233233323333 .....

(B) 2·3055055055 .....

(C) $3+\sqrt{2}$

(D) $2\pi + 1$

77. Which of the following is a rational number that does not lie between $\sqrt{2}$ and $\sqrt{3}$?

(A) 1·4

(B) 1·5

(C) 1·6

(D) 1·7

77. ନିମ୍ନସ୍ଥ କେଉଁଟି $\sqrt{2}$ ଓ $\sqrt{3}$ ମଧ୍ୟରେ ଅବସ୍ଥିତ ନ ଥିବା ଏକ ପରିମେୟ ସଂଖ୍ୟା ?

(A) 1·4

(B) 1·5

(C) 1·6

(D) 1·7

(Space For Rough Work)

78. The product of two consecutive posite even numbers is 224. What is the odd number between them ?

(A) 11

(B) 13

(C) 15

(D) 17

78. ଦୁଇଟି କ୍ରମିକ ଧନାତ୍ମକ ଯୁଗ୍ମସଂଖ୍ୟାର ଗୁଣଫଳ 224 ହେଲେ, ସେ ସଂଖ୍ୟାଦ୍ୱୟ ମଧ୍ୟବର୍ତ୍ତୀ ଅଯୁଗ୍ମ ସଂଖ୍ୟାଟି କେତେ ?

(A) 11

(B) 13

(C) 15

(D) 17

79. The hypotenuse of a right-triangle is 20 m long. If the difference between the lengths of the other two sides is 4 m, what is length of the shortest side in metres ?

(A) 12

(B) 10

(C) 8

(D) 6

79. ଏକ ସମକୋଣୀ ତ୍ରିଭୁଜର କର୍ଣ୍ଣର ଦୈର୍ଘ୍ୟ 20 ମି. ଓ ଅନ୍ୟ ଦୁଇ ବାହୁର ଦୈର୍ଘ୍ୟର ପାର୍ଥକ୍ୟ 4 ମି. ହେଲେ, ତ୍ରିଭୁଜର କ୍ଷୁଦ୍ରତମ ବାହୁର ଦୈର୍ଘ୍ୟ କେତେ ମିଟର ?

(A) 12

(B) 10

(C) 8

(D) 6

(Space For Rough Work)

(Continued)

80. What is the discriminant of the equation

$ax^2 + (c + 2a)x + (b + c) = 0$?

(A) $a^2 - 4ab + 4c^2$

(B) $a^2 + 4ab + 4c^2$

(C) $4a^2 + 4ab + c^2$

(D) $4a^2 - 4ab + c^2$

80. $ax^2 + (c + 2a)x + (b + c) = 0$ ସମୀକରଣର ପ୍ରଭେଦକ କେତେ ?

(A) $a^2 - 4ab + 4c^2$

(B) $a^2 + 4ab + 4c^2$

(C) $4a^2 + 4ab + c^2$

(D) $4a^2 - 4ab + c^2$

81. If one root of the equation $x^2 - px + q = 0$ is two times the other one, then which of the following is true ?

(A) $p^2 - 9q = 0$

(B) $2p^2 - 9q = 0$

(C) $p^2 + 9q = 0$

(D) $2p^2 + 9q = 0$

81. $x^2 - px + q = 0$ ସମୀକରଣର ଗୋଟିଏ ମୂଳ ଅନ୍ୟଟିର ଦୁଇଗୁଣ ହେଲେ, ନିମ୍ନସ୍ଥ କେଉଁଟି ଠିକ ?

(A) $p^2 - 9q = 0$

(B) $2p^2 - 9q = 0$

(C) $p^2 + 9q = 0$

(D) $2p^2 + 9q = 0$

(Space For Rough Work)

82. If one root of the equation $x^2 - 5x + q = 0$ is 3 more than the other, what is the value of 'q' ?

(A) 2

(B) −2

(C) 4

(D) −4

82. ସମୀକରଣ $x^2 - 5x + q = 0$ ର ଗୋଟିଏ ମୂଳ, ଅନ୍ୟଟି ଅପେକ୍ଷା 3 ଅଧିକ ହେଲେ, q ର ମାନ କେତେ ?

(A) 2

(B) −2

(C) 4

(D) −4

83. For what value of 'k', the equations $7x - y = 5$ and $21x - 3y = k$ will be mutually consistent and dependent ?

(A) 7

(B) 10

(C) 12

(D) 15

83. k ର କେଉଁ ମାନ ପାଇଁ $7x - y = 5$ ଏବଂ $21x - 3y = k$ ସମୀକରଣ ଦ୍ୱୟ ପରସ୍ପର ସଙ୍ଗତ ଓ ନିର୍ଭରଶୀଳ ହେବେ ?

(A) 7

(B) 10

(C) 12

(D) 15

(Space For Rough Work)

(Continued)

84. If the equation $\frac{x^2 - bx}{ax - c} = \frac{m-1}{m+1}$ has roots which have equal absolute values but are of opposite sign, what is the value of 'm' ?

(A) $\frac{a+b}{a-b}$

(B) $\frac{a-b}{a+b}$

(C) $\frac{2a+b}{a-b}$

(D) $\frac{2a-b}{a+b}$

84. $\frac{x^2 - bx}{ax - c} = \frac{m-1}{m+1}$ ସମୀକରଣର ମୂଳଦ୍ୱୟର ପରମମାନ ସମାନ, ମାତ୍ର ମୂଳ ଦ୍ୱୟ ବିପରୀତ ଚିହ୍ନ ବିଶିଷ୍ଟ । ତେବେ m ର ମାନ କେତେ ?

(A) $\frac{a+b}{a-b}$

(B) $\frac{a-b}{a+b}$

(C) $\frac{2a+b}{a-b}$

(D) $\frac{2a-b}{a+b}$

85. What is the area, in sq.cm, of the largest triangle that can be inscribed in a semicircle of radius 3·5 cm ?

(A) $7\frac{1}{4}$

(B) $9\frac{1}{4}$

(C) $12\frac{1}{4}$

(D) $15\frac{1}{4}$

85. 3·5 ସେ.ମି. ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ଅର୍ଦ୍ଧବୃତ୍ତରେ ଅନ୍ତର୍ଲିଖିତ ବୃହତ୍ତମ ତ୍ରିଭୁଜର କ୍ଷେତ୍ରଫଳ କେତେ ବର୍ଗ ସେ.ମି. ?

(A) $7\frac{1}{4}$

(B) $9\frac{1}{4}$

(C) $12\frac{1}{4}$

(D) $15\frac{1}{4}$

(Space For Rough Work)

$$\frac{x^2 - bx + ax - c}{x^2 - bx - ax + c} = \frac{2m}{-2} = -m$$

$$x^2 - bx + ax - c = -mx^2 + mbx + max - mc = 0$$

$$\Rightarrow (1+m)x^2 + (a - b - mb - ma)x + (m-1)c = 0$$

$$[(a-b) - m(a+b)]^2 = 4(1+m)(m-1)c$$

(Turn Over)

86. A car travels 120 km from A to B with a speed of 30 km/hr and returns back with a speed of 40 km/hr. What is the average speed of the car in km/hr ?

(A) 35

(B) $35\frac{2}{7}$

(C) 34

(D) $34\frac{2}{7}$

87. What is the value of x in binary form if $(x)_2 \div (1001)_2 = (101)_2$?

(A) $(111001)_2$

(B) $(110101)_2$

(C) $(100111)_2$

(D) $(101101)_2$

86. ଗୋଟିଏ କାର୍ A ରୁ B ପର୍ଯ୍ୟନ୍ତ 120 କି.ମି. ଦୂରତାକୁ ଘଣ୍ଟାପ୍ରତି 30 କି.ମି. ବେଗରେ ଯାଇ ପୁଣି B ରୁ A ପର୍ଯ୍ୟନ୍ତ ଘଣ୍ଟାପ୍ରତି 40 କି.ମି. ବେଗରେ ଫେରି ଆସିଲା । ତେବେ କାର୍‌ଟିର ଉଭୟ ଯାତ୍ରାର ହାରାହାରି ଘଣ୍ଟାପ୍ରତି ବେଗ କେତେ କି.ମି. ?

(A) 35

(B) $35\frac{2}{7}$

(C) 34

(D) $34\frac{2}{7}$

87. $(x)_2 \div (1001)_2 = (101)_2$ ହେଲେ, x ର ମାନ ଦ୍ୱିକରୂପରେ କେତେ ?

(A) $(111001)_2$

(B) $(110101)_2$

(C) $(100111)_2$

(D) $(101101)_2$

(Space For Rough Work)

(Continued)

88. What is the binary equivalence of the 10-base number 43 ?

(A) 101011

(B) 101101

(C) 110011

(D) 110101

88. ଦଶ-ଆଧାର ଭିତ୍ତିକ ସଂଖ୍ୟା 43ର ଦ୍ୱିକ ପଦ୍ଧତିରେ ମାନ କେତେ ?

(A) 101011

(B) 101101

(C) 110011

(D) 110101

89. The circumference of the base of a right circular cylinder is increased by 10 % and the height is decreased by 20 %. What is the percentage decrease caused in its volume ?

(A) 0·032

(B) 0·32

(C) 3·2

(D) 32

89. ଏକ ସରଳ ବୃତ୍ତ ଭୂମିକ ସିଲିଣ୍ଡରର ଭୂମିର ପରିଧିକୁ 10 % ବୃଦ୍ଧି କଲେ ଏବଂ ଉଚ୍ଚତାକୁ 20 % କମାଇ ହେଲେ, ଏହାର ଆୟତନ ଶତକଡା କେତେ ହ୍ରାସ ପାଇବ ?

(A) 0·032

(B) 0·32

(C) 3·2

(D) 32

(Space For Rough Work)

90. If a block of wood in the shape of a right circular cylinder, with diameter equal to height, is reshaped into a sphere of maximum size, what will be the ratio of the surface areas of the original shape and the new shape ?

(A) 4 : 3

(B) 3 : 2

(C) 2 : 3

(D) 3 : 4

90. ଗୋଟିଏ ସରଳ ବୃତ୍ତ ଭୂମିକ ସିଲିଣ୍ଡର ଆକୃତି ବିଶିଷ୍ଟ କାଠ ଖଣ୍ଡର ବ୍ୟାସ ଓ ଉଚ୍ଚତା ସମାନ । ଏଥିରୁ ଏକ ବୃହତ୍ତମ ଗୋଲକ ଆକୃତି ବିଶିଷ୍ଟ ବସ୍ତୁ ପ୍ରସ୍ତୁତ କଲେ, ପୂର୍ବରୁ ଥିବା ସମଗ୍ର ପୃଷ୍ଠତଳ ଓ ପରେ ଉତ୍ପନ୍ନ ହୋଇଥିବା ସମଗ୍ର ପୃଷ୍ଠତଳର କ୍ଷେତ୍ରଫଳର ଅନୁପାତ କେତେ ?

(A) 4 : 3

(B) 3 : 2

(C) 2 : 3

(D) 3 : 4

91. One diagonal of a rhombus and a side of it are equal in length. If the area of the rhombus is $72\sqrt{3}$ cm^2, what is its perimeter in cm. ?

(A) 36

(B) 48

(C) 54

(D) 60

91. ଏକ ରମ୍ବସ୍‌ର ଗୋଟିଏ କର୍ଣ୍ଣର ଦୈର୍ଘ୍ୟ, ଏହାର ଏକ ବାହୁର ଦୈର୍ଘ୍ୟ ସହ ସମାନ ଏବଂ ଏହାର କ୍ଷେତ୍ରଫଳ $72\sqrt{3}$ ବର୍ଗ ସେ.ମି. ହେଲେ, ଏହାର ପରିସୀମା କେତେ ସେ.ମି. ?

(A) 36

(B) 48

(C) 54

(D) 60

(*Space For Rough Work*)

(*Continued*)

92. What is the ratio between the area of an equilateral triangle and that of a square if their perimeters are equal ?

(A) $4\sqrt{3} : 3$

(B) $4 : 3\sqrt{3}$

(C) $3\sqrt{3} : 4$

(D) $3 : 4\sqrt{3}$

92. ସମାନ ପରିସୀମା ବିଶିଷ୍ଟ ଗୋଟିଏ ସମବାହୁ ତ୍ରିଭୁଜ ଓ ଗୋଟିଏ ବର୍ଗକ୍ଷେତ୍ରର କ୍ଷେତ୍ରଫଳର ଅନୁପାତ କେତେ ?

(A) $4\sqrt{3} : 3$

(B) $4 : 3\sqrt{3}$

(C) $3\sqrt{3} : 4$

(D) $3 : 4\sqrt{3}$

93. What is the median of the odd numbers that lie between 25 and 61 ?

(A) 42

(B) 43

(C) 44

(D) 45

93. 25 ଓ 61 ମଧ୍ୟବର୍ତ୍ତୀ ଅଯୁଗ୍ମ ସଂଖ୍ୟାମାନଙ୍କର ମଧ୍ୟମା କେତେ ?

(A) 42

(B) 43

(C) 44

(D) 45

94. What is the mean of the integers from -8 to $+14$?

(A) 7

(B) 6

(C) 4

(D) 3

94. -8 ଠାରୁ $+14$ ପର୍ଯ୍ୟନ୍ତ ପୂର୍ଣ୍ଣସଂଖ୍ୟାମାନଙ୍କର ମାଧ୍ୟମାନ କେତେ ?

(A) 7

(B) 6

(C) 4

(D) 3

(Space For Rough Work)

95. In an examination, the mean mark of the boys of a class is 87 and that of the girls is 3 less. If the boys and the girls in the class are 18 and 12 respectively, what is the mean mark of the whole class

(A) 84·4

(B) 84·8

(C) 85·4

(D) 85·8

95. ଏକ ପରୀକ୍ଷାରେ ଗୋଟିଏ ଶ୍ରେଣୀରେ ଥିବା ବାଳକମାନଙ୍କରେ ନମ୍ବରର ମାଧ୍ୟମାନ ଥିଲା 87 ଏବଂ ବାଳିକାମାନଙ୍କର ନମ୍ବରର ମାଧ୍ୟମାନ ଥିଲା 3 କମ୍ । ଯଦି ଉକ୍ତ ଶ୍ରେଣୀର ବାଳକ ଓ ବାଳିକା ସଂଖ୍ୟା ଯଥାକ୍ରମେ 18 ଓ 12 ହୋଇଥାଏ, ତେବେ ସେହି ଶ୍ରେଣୀର ସମସ୍ତ ପିଲାଙ୍କର ନମ୍ବରର ମାଧ୍ୟମାନ କେତେ ?

(A) 84·4

(B) 84·8

(C) 85·4

(D) 85·8

96. In ΔABC, $\angle ABC$ is a right angle and $\overline{BD} \perp \overline{AC}$. If $AD = a$ cm and $CD = b$ cm, what is the length of $\overline{BD}$?

(A) $\sqrt{a+b}$

(B) $\sqrt{a}+\sqrt{b}$

(C) $\sqrt{a \times b}$

(D) $\sqrt{a^2+b^2}$

96. ΔABC ରେ, $\angle ABC$ ସମକୋଣ ଏବଂ $\overline{BD} \perp \overline{AC}$ । ଯଦି $AD = a$ ସେ.ମି. ଓ $CD = b$ ସେ.ମି ହୁଏ, ତେବେ $\overline{BD}$ ର ଦୈର୍ଘ୍ୟ କେତେ ?

(A) $\sqrt{a+b}$

(B) $\sqrt{a}+\sqrt{b}$

(C) $\sqrt{a \times b}$

(D) $\sqrt{a^2+b^2}$

(Space For Rough Work)

(Continued)

97. If the ratio of a pair of corresponding medians of two similar triangles is $p : q$, then what is the ratio of the areas of those two triangles ?

(A) $p : q$

(B) $q : p$

(C) $p^2 : q^2$

(D) $q^2 : p^2$

97. ଦୁଇଟି ସଦୃଶ ତ୍ରିଭୁଜର ଅନୁରୂପ ମଧ୍ୟମା ଦୁଇଟିର ଅନୁପାତ $p : q$ ହେଲେ, ଉକ୍ତ ତ୍ରିଭୁଜଦ୍ୱୟର କ୍ଷେତ୍ରଫଳର ଅନୁପାତ କେତେ ?

(A) $p : q$

(B) $q : p$

(C) $p^2 : q^2$

(D) $q^2 : p^2$

98. In a circle, $\overline{PQ}$ is a diameter and $\overline{AB}$ is a Chord. $\overline{PQ} \perp \overline{AB}$ and $\overline{PQ}$ intersects $\overline{AB}$ at K. If $PQ = 26$ cm and $KQ = 8$ cm, What is the length of $\overline{AB}$ in cm ?

(A) 10

(B) 12

(C) 20

(D) 24

98. ଗୋଟିଏ ବୃତ୍ତର ବ୍ୟାସ $\overline{PQ}$ ଏବଂ $\overline{AB}$ ଏକ ଜ୍ୟା । $\overline{PQ} \perp \overline{AB}$ ଏବଂ $\overline{PQ}$ ଓ $\overline{AB}$ ର ଛେଦବିନ୍ଦୁ K । ଯଦି $PQ = 26$ ସେ.ମି. ଓ $KQ = 8$ ସେ.ମି. ହୁଏ, ତେବେ $\overline{AB}$ ର ଦୈର୍ଘ୍ୟ କେତେ ସେ.ମି. ?

(A) 10

(B) 12

(C) 20

(D) 24

(*Space For Rough Work*)

99. If each side of an equilateral triangle inscribed in a circle is 12 cm long, what is the diameter of the circle in cm ?

(A) $8 + \sqrt{3}$

(B) $8\sqrt{3}$

(C) $4 + \sqrt{3}$

(D) $4\sqrt{3}$

99. ଏକ ବୃତ୍ତରେ ଅନ୍ତର୍ଲିଖିତ ଏକ ସମବାହୁ ତ୍ରିଭୁଜର ପ୍ରତ୍ୟେକ ବାହୁର ଦୈର୍ଘ୍ୟ 12 ସେ.ମି ହେଲେ, ଉକ୍ତ ବୃତ୍ତର ବ୍ୟାସ କେତେ ସେ.ମି. ?

(A) $8 + \sqrt{3}$

(B) $8\sqrt{3}$

(C) $4 + \sqrt{3}$

(D) $4\sqrt{3}$

100. Three circles, each of radius 7 cm, touch each other externally. How much is the area of the sectors, in cm^2, enclosed in the triangle formed by joining the centres ?

(A) $\frac{77}{2}$

(B) $\frac{77}{3}$

(C) 77

(D) 154

100. 7 ସେ.ମି. ଦୀର୍ଘ ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ତିନୋଟି ବୃତ୍ତ ପରସ୍ପରକୁ ବହିଃସ୍ପର୍ଶ କରନ୍ତି । କେନ୍ଦ୍ର ତିନୋଟିକୁ ଯୋଗ କରିବାଦ୍ୱାରା ଉତ୍ପନ୍ନ ହୋଇଥିବା ତ୍ରିଭୁଜ ମଧ୍ୟରେ ଅନ୍ତର୍ଭୁକ୍ତ ବୃତ୍ତକଳାଗୁଡ଼ିକର କ୍ଷେତ୍ରଫଳ କେତେ ବର୍ଗ ସେ.ମି. ?

(A) $\frac{77}{2}$

(B) $\frac{77}{3}$

(C) 77

(D) 154

(*Space For Rough Work*)

DET - 2013
Set code - 1
(For 1st semester of 3 yrs Diploma course) DIPLOMA

SET CODE-1	
Q.No.	Answer
1	B
2	D
3	A
4	D
5	C
6	A
7	C
8	A
9	B
10	B
11	D
12	B
13	D
14	C
15	B
16	B
17	D
18	B
19	C
20	A
21	C
22	D
23	A
24	D
25	A
26	C
27	B
28	D
29	D
30	A
31	D
32	C
33	D
34	B
35	A
36	A
37	D
38	B
39	A
40	B
41	C
42	A
43	B
44	C
45	A
46	C
47	A
48	D
49	B
50	D

Contd -

DET - 2013
Set code - 1
(For 1st semester 3 yrs Diploma course) DIPLOMA E

SET CODE-1	
Q.No.	Answer
51	B
52	A
53	A
54	C
55	C
56	B
57	D
58	B
59	A
60	D
61	D
62	A
63	D
64	B
65	D
66	A
67	C
68	C
69	B
70	A
71	A
72	D
73	D
74	D
75	B
76	B
77	A
78	C
79	A
80	D
81	B
82	C
83	D
84	B
85	C
86	D
87	D
88	A
89	C
90	B
91	B
92	B
93	B
94	D
95	D
96	C
97	C
98	D
99	B
100	C