32 PAGES ANSWER BOOK

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विषय कोड Subject Code : 100

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उत्तर देने का माध्यम
Medium of answering the paper : English

प्रश्न पत्र का सैट
Set of the Question paper : D

गोले भरने हेतु उदाहरण :-
सही तरीका :-
● ○ ○ ○
गलत तरीका :-
⊗ ⊘ ○ ◐ ◉ ○

नोट :-
इस शीट को भरने के पूर्व इस पृष्ठ के पीछे दिए गए उदाहरण को देखें।

कार्यालय उपयोग के लिए

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केवल मूल्यांकनकर्ता के उपयोग हेतु!

माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

32 पृष्ठीय

केवल परीक्षक द्वारा भरा ...
प्रश्न क्रमांक के सम्मुख प्राप्तांकों ... करें।

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ST-16 A4

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे ↓

प्रमाणित किया जाता है कि अन्दर के पृष्ठों के अनुरूप मुख्य पृष्ठ पर अंकों की प्रविष्टी एवं अंकों का योग सही है।

निर्धारित मुद्रा : नाम, पदनाम, मोबाईल नम्बर, परीक्षक क्रमांक एवं पदांकित संस्था के नाम की मुद्रा लगाएं।

उप मुख्य परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा	परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा
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Answers of Q. No. 1

Ans (i) (b) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$

An (c) $ax^2 + bx + c = 0$

An (b) 22

Ans (iv) (d) $l = \sqrt{r^2 + h^2}$

Ans (v) (c) ~~20~~ 2

Ans (vi) (d) 3

Answer of Q

Ans (i) All equilateral triangle similar.

Ans (ii) The ~~distam~~ distance point from x-axis is called ordinate.

Ans (iii) The probability of sure event is 1.

Ans (is a irrational Number.

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Ans (v) Shridharacharya derived a formula, now known as the Quadratic Formula.

Ans (vi) The 10^{TH} term of A.P. 5, 10, 15, ... is 50.

Answer of Q.No.3.

i.	Volume of cuboid	bac [lxbxh]
ii.	Area of a Square	a^2
iii.	$\sin^2 A + \cos^2 A$	1
	$\tan(90° - A)$	cot A
v.	$9\sec^2 A - 9\tan^2 A$	9
vi.	Distance between points (0,4) and (3,0)	5

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Answer of Q.No. 4

Ans (i) Point of Contact is the common point of the tangent and the circle.

Ans (ii) The probability of getting a number 8 in a single throw of die is 0 (zero).

(iii) $\text{class mark} = \frac{\text{upper limit} + \text{lower limit}}{2}$

$= \frac{20+40}{2}$

$= 30$

Hence, class mark of the class 20-40 is 30.

Ans (iv) $D = b^2 - 4ac$

Ans (v) $S_n = \frac{n}{2}\left[2a + (n-1)d\right]$

Ans (vi) The angle of elevation is the angle formed ~~wit~~ by line of sight with the Horizontal when the point on the object viewed is above the horizontal line.

Answer of Q.No.5

(i) True

(ii) False

True

False

(v) True

(vi) False

Answer of Q.No.6 [OR]

We need to find the value of $\frac{\sin 18^\circ}{\cos 72^\circ}$

We know that,

$$\sin\theta = \cos(90^\circ - \theta)$$

So, $\frac{\sin 18^\circ}{\cos 72^\circ} = \frac{\cos(90^\circ - 18^\circ)}{\cos 72^\circ}$

Which is equal to,

$$\frac{\cos 72^\circ}{\cos 72^\circ} = 1$$

Hence, the value is 1.

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Answer of Q.No. 7

Given that, the probability of Sangeeta winning the match = 0.62

We know that,

$P(E) + P(\bar{E}) = 1$.

i.e, P(Event) + P(Not Event) = 1

Also, the probability of Reshma winning the match is exact the probability of Sangeeta losing the Match.

Thus, we can consider $P(\bar{E})$ as Reshma winning the match.

Therefore,

$$P(E) + P(\bar{E}) = 1$$
$$0.62 + P(\bar{E}) = 1$$
$$P(\bar{E}) = 1 - 0.62$$
$$P(\bar{E}) = 0.38$$

Hence, the probability of Reshma winning the match is 0.38.

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Answer of Q.No. 8

It is given that a die is thrown once.

So,

Total Number of Outcomes = 6 [1, 2, 3, 4, 5, 6]

Number of Primes = 3 [2, 3, 5]

$$P(E) = \frac{\text{No. of Outcomes Favourable to E}}{\text{Total No. of Possible Outcomes}}$$

$$= \frac{3}{6}$$

$$= \frac{1}{2}$$

Hence, the probability of getting prime number is 0.5 or $\frac{1}{2}$.

Answer of Q.No. 9

Prime Factorisation of 140 –

2	140
2	70
5	35
7	7
	1

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Thus, $140 = 2 \times 2 \times 5 \times 7$

Answer of Q.No.10 [OR]

By Prime Factorisation of 17, 23 and 29.

17	17	23	23	29	29
	1		1		1

$17 = 17 \times 1$

$23 = 23 \times 1$

$29 = 29 \times 1$

Here, the only common factor is 1.
Hence, the HCF of 17, 23 and 29 is 1.

Answer of Q.No.11

We need to find the zeroes of quadratic polynomial $4u^2 + 8u$.

By Observing the polynomial we can say that,

~~$4u^2 + 8u = 4u(u+8)$~~

$4u^2 + 8u = 4u(u+2)$

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For $4u^2+8u$ equal to zero, $4u(u+\frac{2}{8})=0$.

So,

$4u = 0$ and $u+\frac{2}{8}=0$

$\boxed{u=0}$ and $\boxed{u=-2}$

Thus, the zeroes of quadratic polynomial $4u^2+8u$ is 0 and -2.

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Answer of Q. No. 12 [OR]

Equations : $x+y=14$ — eq (i).

$x-y=4$ — eq (ii)

Also, $x=y+4$ — eq (iii)

Now, Put the value of eq x from eq (iii) to eq (i),

$x+y=14$

$4+y+y=14$ [Substituting the value of x]

$2y+4=14$

$2y=14-4$

$2y=10$

$y=\frac{10}{2}$.

$\boxed{y=5}$

Now put the value of y in eq (iii)

$x = 4+y$

$x = 4+5$

$\boxed{x=9}$

Hence, the solution of given equations is $\underline{x=9}$ and $\underline{y=5}$.

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Answer of Q.No.13

(curve)

since, the line intersect the x-axis 3 times, the number of zeroes will be 3.

Answer of Q.NO.14 [OR]

Given, Quadratic Equation is,

$$2x^2 - 4x + 3 = 0.$$

Here, $a = 2$ $b = -4$ and $c = 3$.

We know that,

Discriminant $= b^2 - 4ac$

$= [-4]^2 - 4 \times 2 \times 3$

$= 16 - 8 \times 3$

$= 16 - 24$

$= -8$

Hence, the value of Discriminant for given equation is -8.

Answer of Q.No.15

Given, A.P. = 2, 7, 12, ...

In the given A.P.,

$a = 2 \quad d = a_2 - a_1 = 7 - 2 = 5$

We need to find the 10^{th} term of A.P.

So, $n = 10$.

We know that,

$a_n = a + (n-1)d$.

$a_{10} = 2 + (10-1)5$

$a_{10} = 2 + [9 \times 5]$

$a_{10} = 2 + 45$

$a_{10} = 47$

Hence, the 10^{TH} term of given A.P. is 47.

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Answer of Q.No. 16

Basic Proportionality Theorem:

If a line is drawn parallel from one side of a triangle to intersect the other side at distinct point, then the two sides are divided in the same ratios. This is Basic Proportionality Theorem or Thales Theorem.

Answer of Q.No. 17

Given, Cordinates are P(4,6) and Q(6,8)

Distance Formula as we know is,

$$\text{Distance} = \sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$$

Here, $x_1 = 4$, $x_2 = 6$, $y_1 = 6$ and $y_2 = 8$

So,

$$\text{Distance} = \sqrt{(6-4)^2+(8-6)^2} \text{ units}$$

$$= \sqrt{(2)^2+(2)^2} \text{ units}$$

$$= \sqrt{4+4} \text{ units}$$

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$= \sqrt{8}$ units

$= 2\sqrt{2}$ units

Hence, the distance between P and Q is $2\sqrt{2}$ units.

Answer of Q.No. 18

Given, the radius of circle $r = 6$ cm.
the angle between two radii or the angle of sector $\theta = 60°$

We know that,

Area of sector $= \frac{\theta}{360} \times \pi r^2$ sq. unit

$= \frac{60}{360} \times \frac{22}{7} \times 6 \times 6$ cm^2.

$= \frac{1}{6} \times \frac{22}{7} \times 6 \times 6$ cm^2.

$= \frac{22}{7} \times 6$ cm^2.

$= \frac{132}{7}$ cm^2

Hence, the area of sector is $\frac{132}{7}$ cm^2.

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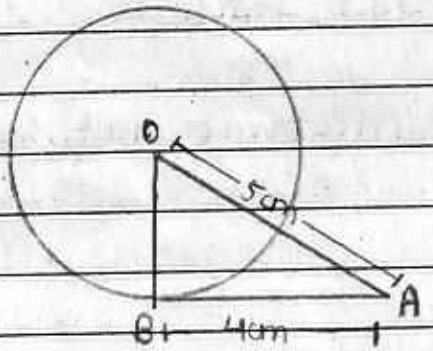
Answer of Q.No. 19 [OR]



Given : The length of Tangent from centre of a circle(OA) = 5 cm

Length of Tangent from Point of contact with the circle to Point A = 4cm

We can conclude that,

$\angle OAB =$

$\angle OBA = 90°$ [∵ Tangents at the circle is perpendicular to the Radius Through point of contact.]

Thus, ΔOBA is right angled triangle, where, OB is perpendicular (P), AB is Base (B) and OA is Hypotenuse (H).

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Using Pythagoras Theorem,

$(H)^2 = (P)^2 + (B)^2$.

$(OA)^2 = (OB)^2 + (AB)^2$

$(5)^2 = (OB)^2 + (4)^2$

$25 = (OB)^2 + 16$.

$25 - 16 = (OB)^2$

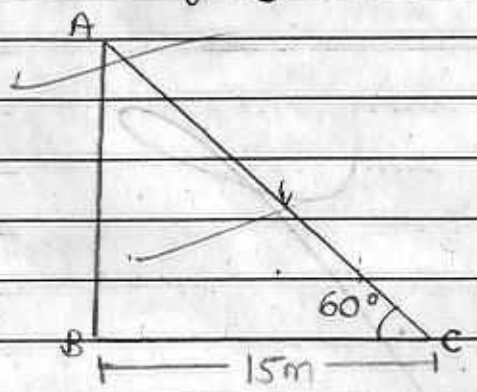
$OB^2 = 9$.

$OB = \sqrt{9}$ cm $\sqrt{9}$ cm

$OB = 3$ cm

Hence, the Radius of circle is 3cm.

Answer of Q.No. 20



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Here, $\angle ACB$ [Angle of Elevation] $= 60°$

In the figure, AB is the height of tower and BC is the distance from the foot of the tower.

In ΔABC, right angled at B

$$\tan\theta = \frac{AB}{BC}$$

$$\tan 60° = \frac{AB}{15}$$

$$\sqrt{3} = \frac{AB}{15} \qquad [\because \tan 60° = \sqrt{3}]$$

$$15\sqrt{3} = AB$$

$$AB = 15\sqrt{3} \text{ m}$$

Hence, the Height of tower is $15\sqrt{3}$ m.

Answer of Q.No. 21

Literacy Rate (in %)	No. of cities (f_i)	Class Mark (x_i)	$f_i x_i$
45-55	3	50	150
55-65	10	60	600
65-75	11	70	770
75-85	8	80	640
85-95	3	90	270
Total	35		2430

$$\text{Mean}(\bar{x}) = \frac{\Sigma f_i x_i}{\Sigma f_i}$$

$$= \frac{2430}{35}$$

$$= \frac{486}{7}$$

$$= 69.42$$

Hence, the mean literacy rate is 69.42%.

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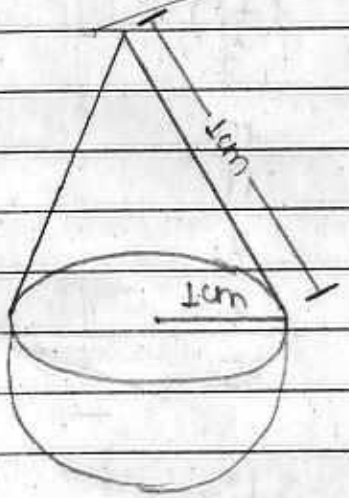
Answer of Q.No. 22 (OR)



Given that,

Radius of Cone and Hemisphere (r) = 1 cm.

Height of Cone (h) = 1 cm

Thus, $h = r = 1$ cm.

Volume of Solid = Volume of Cone + Volume of Hemisphere.

$$= \frac{1}{3}\pi r^2 h + \frac{2}{3}\pi r^3$$

$$= \frac{1}{3}\pi \times (1)^2 \times 1 + \frac{2}{3} \times \pi (1)^3 \ cm^3$$

$$= \frac{1}{3}\pi + \frac{2}{3}\pi \ cm^3$$

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$= \pi \left[\frac{1}{3} + \frac{2}{3}\right] cm^3$

$= \pi \left[\frac{3}{3}\right] cm^3$

$= \pi \ cm^3$

Hence, the volume of solid in terms of π is $\pi \ cm^3$.

Answer of Q.NO. 23

let the one number be x and the other be y. [with $x > y$]

Since, the difference between two numbers is 26. So, our equation be

$x - y = 26$ —— eq (i).

Also, One number is Three times the other. Thus,

$x = 3y$ —— eq (ii)

We can easily substitute the value of x from eq (ii) in eq (i)

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$x - y = 26$.

$3y - y = 26$ [Substituting the value of x].

$2y = 26$.

$y = \frac{26}{2}$.

$\boxed{y = 13}$

Now put the value of y in eq(ii).

$x = 3y$.

$x = 3 \times 13$.

$\boxed{x = 39}$

Hence, ~~the~~ one number is 39 and ~~so~~ other number is 13.