<table>
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Guess Paper – 2014
Class – XII
Subject – Accountancy
Qs 1-10 of 1 marks each.   Qs11-22 of 4 marks each. Qs 23-29 of 6 marks each.

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</table>

Q.1   For binary operation on Z defined by a*b=a+b+1 .The identity element is
        _____(fill the blank).

Q.2   Write the value of x+y+z if $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ -1 \\ 0 \end{bmatrix}$

Q.3   Write the principal value of $\cos^{-1}\left(\cos\frac{7\pi}{6}\right)$

Q.4   Write the distance between parallel planes 2x-y+3z=4 and   2x –y+3z=18.

Q.5   Find the area of triangle with vertices (5,0),(-3,0),$\left(\overline{2,0}\right)$ $\frac{-5}{2}$

Q.6   If $\vec{a}\ and\ \vec{b}$ are two vectors of magnitude 3 and $\frac{2}{3}$ respectively such that
        $\vec{a}\times\vec{b}$ is a unit vector. Write the angle between $\vec{a}\ and\ \vec{b}$

Q.7   At what point of the curve y=x^2,$[-2,2]$,tangent is parallel to x-axis .

Q.8   Find the total number of matrices of order 2x2, each of whose elements
        are 0 or 1

Q.9   Evaluate the integral $\int\frac{\log x^n}{x}\,dx$

Q.10 Find the number of parameters in $y = a\sin x + b\sin(x + c)$

Q.11 Examine which of the following is binary operation-

(i)	$a*b=\dfrac{a+b}{2}$	a,b∈N
(ii)	$a*b=\dfrac{a+b}{2}$	a,b∈Q

       For binary operation check the commutative and associative property.

Q.12 Using properties of determinants, show that
$$\begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = \left(1+a^2+b^2\right)^3$$

Q.13 Find the real solution of $\tan^{-1}\sqrt{x(x+1)}+\sin^{-1}\sqrt{x^2+x+1}$ $=\frac{\pi}{2}$

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Q.14 Evaluate $\int \frac{\sqrt{1+x^2}}{x^4}\left[\log[(x)^2+1) - 2\log x\right]\,dx$

Q.15 If x=a$(\cos t + t\sin t)$ and y=a$(\sin t - t\cos t)$. Find $\frac{d^2y}{dx^2}$

Q.16 Find the particular solution of $(1+y^2)dx = (\tan^{-1}y - x)dy, \qquad y(0)=0$

Q.17 Using L.M.V theorem find a point on the parabola $y = x^3 - 3x$ where the tangent is parallel to the chord joining (1,-2)and (2,2)

Q.18 A person has undertaken a construction job .The probabilities are 0.65 that there will be strike ,0.80 that the construction job will be completed in time if there is no strike ,0.32 that construction job will be completed if there is strike. Determine the probability that construction job will be completed in time . How STRIKE affect one's life?

Q.19 Evaluate $\int_1^3 [(3x^2] + 2x)\,dx$ as a limit of sum.

Q.20 Show that the four points A,B,C and D with position vectors 4i+5j+k,-(j-k),3i+9j+4k and -4i+4j+4k respectively are coplanar.

Q.21 Show that the curves $ax^2 + by^2 = 1$ and $cx^2 + dy^2 = 1$ cut orthogonally if $\frac{1}{a} - \frac{1}{b} = \frac{1}{c} - \frac{1}{d}$

Q.22 Find the vector equation of line passing through (1,2,3) and parallel to the plane $\vec{r}.(\hat{\imath} - \hat{\jmath} + 2\hat{k}) = 5 \ and \ \vec{r}.(3\hat{\imath} + \hat{\jmath} + \hat{k}) = 6$

Q.23 An oil company require 13000,20000 and 15000 barrels of high grade ,medium grade and low grade oil respectively. Refinery A produces 100,300 and 200 barrels per day of high, medium and low grade respectively whereas refinery B produces 200,400 and 100 barrels per day respectively . If A cost Rs 400/day and B cost Rs 300/day to operate. H ow many days should each be run to minimize the cost of operating. Also,write how high requirement of oil affects our economy.

Q.24 Find the length and co-ordinate of the foot of perpendicular from the point (7,14,5) to the plane $2x + 4y - z = 2$

Q.25 Show that the differential equation: $(x - y)\frac{dy}{dx} = x + 2y$ h omogeneous and solve it .

Q.26 Using integration ,find the area of following region :
$\{(x,y):|x-1| \le y \le \sqrt{5-x^2}\}$.

Q 27 A poster show organized in a school. A student of class XII make poster in form of cone and write "PEACE AND INTEGRITY" on it. Show that semi –vertical angle of cone of maximum volume and of given slant height is $\cos^{-1}\left(\frac{1}{\sqrt{3}}\right)$. Write the value of "PEACE AND INTEGRITY" in world.

Q 28 In a assessment of qualities,; Punctuality,neatness,obedience among students are

assessed. They are defined by variables x,y,z respectively and given different weightage. Total marks were given to three students . They are in form of following equation : $x + y + z = 6, 2x - y + z = 3, x - 2y + 3z = 6$. Find the weightage given to these values (x,y,z) using matrix method . Explain effect of any one value on student life.

Q 29 Let X denote the number of hours you study during a randomly *selected* school day. The probability that X can take the value x has the following form ,where K is some unknown constant:

$$
P(X) = \begin{cases}
0.1 & \text{if x=0} \\
Kx & \text{if x=1 or 2} \\
K(5-x) & \text{if x=3 or4} \\
0 & \text{otherwise}
\end{cases}
$$

(a)Find the value of K. (b)what is the probability that you study at least two hours? Exactly two hours ? Atmost two hours. Is the number of studying hours related with success in exam ? explain.

ANSWER KEY

-1	**9**	$\dfrac{n(\log x)^2}{2} + c$	**17**	$\dfrac{7}{\sqrt{3}}, \dfrac{-2}{3}\sqrt{\dfrac{7}{3}}$		**25**	$\log\lvert y^2 + xy + x^2\rvert + 2\sqrt{3}\,\text{ta}$
0	**10**	2	**18**	0.488		**26**	$\dfrac{5\pi - 2}{4}$ sq.unit
$\dfrac{5\pi}{6}$	**11**		**19**	34		**27**	
$\sqrt{14}$	**12**		**20**			**28**	$\lvert A\rvert = 9, x = 1, y = 2, z =$
0	**13**	0 or -1	**21**			**29**	K=0.15
$\dfrac{\pi}{6}$	**14**	$\dfrac{-1}{3}\left(1 + \dfrac{1}{x^2}\right)^{\frac{3}{2}}\left[\log\left\lvert 1 + \dfrac{1}{x^2}\right\rvert - \dfrac{2}{3}\right]$	**22**	$\vec{r} = \hat{\imath} + 2\hat{\jmath} + 3\hat{k} + Y\left(-3\hat{\imath} + 5\hat{\jmath} + 4\hat{k}\right)$			(b)0.75,0.3,0.55 $\log\lvert y^2 + xy + x^2\rvert + 2\sqrt{3}\,\text{ta}$
(0,0)	**15**	$\dfrac{(\sec)\lvert(t)^3}{at}$	**23**	$A = \dfrac{170}{3}\ days,\qquad B = \dfrac{110}{3}day$			
16	**16**	$(x - \tan^{-1}y + 1)e^{\tan^{-1}}y = 1$	**24**	$3\sqrt{21},\quad (1,2,8)$			

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