

PSC Research Officer - Economics And Statistics Examination Previous Year Question Paper

***Exam Name: Research Officer - Economics And
Statistics***

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160/2015

1. India's first computer was installed at Indian Statistical Institute, Kolkata in the year :
(A) 1950 (B) 1952 (C) 1956 (D) 1958
2. Who is the founder of "Sankhya", the Indian Journal of Statistics ?
(A) C.R. Rao (B) R.C. Bose
(C) S.N. Roy (D) P.C. Mahalanobis
3. Which ministry co-ordinates the census activities in India ?
(A) Home Affairs (B) MoSPI (C) HRD (D) Finance
4. Which of the following measures involve nominal scale ?
(A) The runs scored by a batsman (B) The rank of a student in a test
(C) The height of a tree (D) The number on an automobile license plate
5. A random sample of 50 is picked without replacement from a population of 1000 adult males. If the standard deviation of the distribution of their heights is known to be 3 inches, then the standard error of the sample mean is :
(A) $\frac{3}{\sqrt{50}}$ (B) $\frac{\sqrt{19}}{\sqrt{111}}$ (C) $\frac{\sqrt{855}}{\sqrt{5000}}$ (D) $\frac{\sqrt{18}}{\sqrt{95}}$
6. Which of the following statements is **true** ?
(A) Sample survey is free of non - sampling errors
(B) Sampling error is present in both census and sample surveys
(C) Non - sampling error is comparatively low in sample surveys
(D) Non - sampling error is comparatively low in census surveys
7. If a continuous random variable X has a pdf of the form $f(x) = \frac{2x}{9}$; $0 < x < 3$, and 0 otherwise, then the median of X is :
(A) $\frac{3}{2}$ (B) $\frac{2}{3}$ (C) $\frac{3}{\sqrt{2}}$ (D) $\frac{2}{\sqrt{3}}$
8. If X and Y are independent random variables with respective moment generating functions $E(e^{tX}) = \frac{1}{4}(e^{0t} + e^{1t} + e^{2t} + e^{3t})$ and $E(e^{tY}) = \frac{1}{4}(e^{0t} + e^{4t} + e^{8t} + e^{12t})$, then the possible values of $Z = X + Y$ are :
(A) 0, 1, 2, 3, 4, 8, 12 (B) 0, 5, 10, 15
(C) 0, 4, 16, 36 (D) 0, 1, 2, ..., 15

9. A couple has two children one of them is known to be a boy. What is the probability that they have two boys ?
- (A) $\frac{1}{4}$ (B) $\frac{1}{3}$ (C) $\frac{3}{4}$ (D) $\frac{1}{2}$
10. The expected value of the random variable X having the pdf $f(x) = \frac{|x-2|}{7}$ for $x = -1, 0, 1, 3$ is :
- (A) $\frac{1}{7}$ (B) 1 (C) $\frac{3}{7}$ (D) $-\frac{1}{7}$
11. Which of the following cannot be a moment generating function ?
- (A) $\frac{1}{1-t^2}$ (B) $\frac{t}{1-t}$ (C) $e^{4(e^t-1)}$ (D) $\frac{1}{8}(1+e^t)^3$
12. Which of the following methods is are used for the computation of consumer price index numbers ?
- (A) Aggregate expenditure method (B) Family budget method
(C) Chain base method (D) Both (A) and (B)
13. Which ministry in India is responsible for compiling Wholesale Price Index ?
- (A) Labour (B) Commerce and Industry
(C) MoSPI (D) Finance
14. The salary of a person in the base year is ₹ 20,000 per month and in the current year ₹ 50,000. If the current Consumer Price Index is 325 then the allowance required to maintain the same standard of living is :
- (A) ₹ 30,000 (B) ₹ 35,000 (C) ₹ 15,000 (D) None of these
15. Suppose a family spends on food, housing and clothing in the ratio 5 : 3 : 2. If there is a rise in prices of these heads by 40, 30 and 20 percent respectively, then the family budget for these items will be increased by :
- (A) 33% (B) 30% (C) 25% (D) None of these
16. If the two lines of regression are $x + 2y - 5 = 0$ and $2x + 3y - 8 = 0$ then the correlation between x and y is :
- (A) $\frac{\sqrt{3}}{2}$ (B) $-\frac{\sqrt{3}}{2}$ (C) $\frac{3}{4}$ (D) $-\frac{3}{4}$

17. Which of the following components may be ignored when a time series data is collected on an annual basis ?
(A) Trend (B) Seasonal (C) Cyclical (D) Irregular
18. Crude birth rates are calculated by dividing the births during a year by :
(A) Mid - year population for that year
(B) End - year population for that year
(C) Population at the beginning of the year
(D) None of these
19. The chart suitable to represent the data on blood donation of O, A, B and AB blood groups by the students in a college during the last four years is :
(A) pie chart (B) histogram
(C) multiple bar diagram (D) cartogram
20. The average marks of boys in a class is 65 and that of girls is 70. The average of both the groups combined is 67. Then the ratio of number of boys and girls is :
(A) 1 : 3 (B) 2 : 3 (C) 3 : 1 (D) 3 : 2
21. On fitting a bivariate linear regression model to a data set ($n = 10$) it is found that the variance of the dependent variable (based upon a division of n) is 8.5 and the residual sum of squares is 17. Then the coefficient of determination (r^2) of the fitted model is :
(A) 0.80 (B) 0.20 (C) 0.50 (D) 0.25
22. Which average is suitable for finding the average of proportions ?
(A) Arithmetic mean (B) Median
(C) Mode (D) Geometric mean
23. Which of the following statements is false if multicollinearity is present ?
(A) There occurs several models which include different sets of explanatory variables consonant with the data.
(B) There can be no clear cut interpretation of the regression coefficients as measures of marginal effects.
(C) The regression coefficients may be unstable
(D) The OLS estimates of regression coefficients are no longer unbiased.
24. If Q_1, Q_2, Q_3 are the quartiles, then which of the following holds for a positively skewed data ?
(A) $Q_3 - Q_1 > Q_2$ (B) $Q_1 + Q_2 > 2Q_3$ (C) $Q_1 + Q_3 > Q_2$ (D) $Q_1 + Q_3 > 2Q_2$
25. The null hypothesis of Durbin - Watson test for auto correlation is :
(A) random component of the regression model is independently and normally distributed
(B) random component of the regression model is dependent and normally distributed
(C) there is one period dependence between successive values of the random component
(D) None of these

26. The arithmetic mean of a set of distinct number is 10. If each number is squared, then the mean of the squares of the number is :
(A) Greater than 100 (B) Less than 100 (C) 100 (D) Any of these
27. For any two events A and B, $P(A \cap B^c)$ is equal to :
(A) $P(A) - P(B)$ (B) $P(B) - P(A)$ (C) $P(B) - P(A \cap B)$ (D) $P(A) - P(A \cap B)$
28. If $P(E) = 0.9$ and $P(F) = 0.8$ then which of the following is true ?
(A) $P(E \cap F) \geq 0.70$ (B) $P(E \cap F) \leq 0.70$
(C) $P(E \cap F) \geq 0.80$ (D) $0.80 \leq P(E \cap F) \leq 0.90$
29. If x is an observed value of a random variable $X \sim \text{UNIF}[0,10]$ the x divides the interval $[0, 10]$ into two subintervals. What is the probability that the ratio of lengths of the shorter to longer subinterval is less than $\frac{1}{4}$?
(A) $\frac{1}{5}$ (B) $\frac{2}{5}$ (C) $\frac{1}{2}$ (D) $\frac{1}{4}$
30. If the standard deviation of a normal distribution is 4 then the fourth central moment of the distribution is :
(A) 48 (B) 768 (C) 256 (D) 192
31. The value of the objective function at an optimal solution of the LPP $\min x_1 + x_2$ subject to $x_1 - x_2 = -5$, $x_1 \geq 0$, $x_2 \geq 0$ will be :
(A) 10 (B) -5 (C) 5 (D) 0
32. If a population has normal distribution with variance 225, then how large a sample must be drawn in order to be 95 per cent confident that the sample mean will not differ from the population mean by more than 2 units. ($Z_{\alpha/2} = Z_{.025} = 1.96$).
(A) 152 (B) 216 (C) 305 (D) 92
33. Of 100 people who were given a vaccine, 80 developed immunity to a disease. Then a 98 per cent confidence interval on the true proportion of people developing immunity is : ($Z_{\alpha/2} = Z_{.01} = 2.33$).
(A) (0.763, 0.837) (B) (0.791, 0.809) (C) (0.707, 0.893) (D) None of these
34. Which of the following statements is true for applying usual Student's t test for testing equality of means of two independent populations ?
(A) The two populations are independent and normally distributed with equal unknown variances.
(B) The two populations are independent and normally distributed with known variances.
(C) The two populations are independent and normally distributed with unknown and unequal variances.
(D) The two independent populations have equal unknown variances but their distributions need not to normal.

35. The random variable X , Y , and Z have the means $\mu_x=1$, $\mu_y=7$, $\mu_z=4$, the variances $\sigma_x^2=8$, $\sigma_y^2=10$, $\sigma_z^2=9$, and the covariances $\text{cov}(X, Y)=2$, $\text{cov}(X, Z)=-5$, $\text{cov}(Y, Z)=3$. If $U=X-3Y+2Z$ and $V=3X-Y-2Z$ the $\text{cov}(U, V)$ is :
 (A) 10 (B) -10 (C) 20 (D) -20

36. If we use the statistic $T=\frac{1}{6}(X_1+2X_2+3X_3)$ for estimating the parameter θ of a Bernoulli population then T is :
 (A) unbiased and sufficient (B) unbiased and consistent
 (C) unbiased only (D) sufficient only

37. If X is a non - negative random variable having mean μ , distribution function $F(x)$ and finite second moment then which of the following is false ?

(A) $\mu = \int_0^{\infty} [1-F(x)]dx$ (B) $E(X^2) = \int_0^{\infty} 2x[1-F(x)]dx$
 (C) $E(X^2) = \int_0^{\infty} x[1-F(x)]dx$ (D) $P(X \geq t\mu) \leq \frac{1}{t}$

38. Which of the following statements is false ?

- (A) If a distribution is symmetric about zero if, and only if, its characteristic function is real and even.
 (B) If $\phi(t)$ is a characteristic function, then $e^{\phi(t)-1}$ and $|\phi(t)|^2$ are also characteristic functions.
 (C) A characteristic function $\phi(t)$ defined on \Re is non - negative definite and continuous with $\phi(0)=1$
 (D) None of these

39. From the following price index information, what is the percentage change in prices between 2010 and 2013 ?

Year	2010	2011	2012	2013
Index 1	100	115	125	
Index 2			100	120

- (A) 50% (B) 35% (C) 30.4% (D) 5%

40. If α and β respectively denote probabilities of type - 1 and type - 2 errors in testing of hypotheses then which of the following statements is false ?

- (A) If $\alpha=1$ then $\beta=0$ (B) If $\alpha=0$ then $\beta=1$
 (C) $\alpha+\beta=1$ (D) If α increases β decreases

41. Who played the pioneering role in the development of National Income Accounting ?

- (A) Alfred Marshall (B) Simon Kuznets (C) Joan Robinson (D) John Nash

42. What is the growth rate of Per Capita State Domestic Product in Kerala from 2000 - 2001 to 2010 - 2011 (% per year) ?
(A) 6.3 (B) 8.2 (C) 10.1 (D) 7.0
43. Who provided a detailed set of suggestions for a three - tier system of local government in India ?
(A) Balwantrai Mehta Committee (B) Bardhan and Mookherjee
(C) Aiyar (D) Chattopadhyay and Duflo
44. Identify the components of 'Debt - Dynamic Wedge' for making a decline in Debt - GDP ratio.
(A) CPI inflation
(B) Fiscal deficit and revenue deficit
(C) Real rate of economic growth, real cost of borrowing and primary deficit
(D) Real rate of interest, GDP and NNPM
45. The growth rate of real agricultural wages in the post - reform period (1993 - 94 to 1999 - 2000) was :
(A) 1.3% (B) 5.1% (C) 0.1% (D) 3.7%
46. According to the poverty estimates, head count ratio in India during 2009 - 10 was :
(A) 33.8 (B) 20.9 (C) 12.0 (D) 29.8
47. Identify the strategic factor necessary for inclusive growth :
(A) Industrial expansion led by productivity growth.
(B) Expansion of IT.
(C) Effective governance.
(D) Reduction of tax - GDP ratio
48. As per the Budget estimates of 2015 - 16, what is the fiscal deficit as a percentage of GDP targeted ?
(A) 4.9% (B) 3.9% (C) 2.8% (D) 1.1%
49. As per the DML (2013) report, the largest proportion of domestic migrant labour in Kerala hail from :
(A) Bihar (B) Orissa (C) West Bengal (D) Assam
50. The most dynamic element in the employment sector in Kerala during 1999 - 2004 was :
(A) Extraordinary decrease of the unemployed.
(B) Increase in the proportion of employed in many sectors.
(C) Increase in agricultural labourers.
(D) Decline in the employment among women.

51. The rate of growth of Per Capita NNP during 2004 - 2005 to 2011 - 2013 as per 1999 - 2000 prices was :
(A) 1.4% (B) 6.3% (C) 3.2% (D) 4.7%
52. Physical connectivity in the PURA model aims at :
(A) Grouping of 15 to 25 villages together and linking each other by road.
(B) Linking villages with IT services.
(C) Marketing facilities in villages.
(D) Expansion of agricultural and allied activities.
53. The phenomenon of price rise due to multiplicity of taxes is called :
(A) Hyper inflation (B) Inflation (C) Disinflation (D) Cascading effect
54. The most important economic consequences of demographic transition in Kerala in the 21st century are :
(A) Decline in the size of labour force and aging
(B) Decline in fertility rate and increase in mortality rate
(C) Increase in potential support ratio
(D) None of the above
55. Under the new inflation targeting mechanism, Government of India has mandated RBI to bring down inflation by :
(A) Below 3.8% by December 2016 (B) Below 6% by January 2016
(C) Below 3% by December 2016 (D) Below 5.3% by January 2016
56. As per the CSO estimates of 2014 Gross Domestic Savings in India as a percentage of GDP during 2011 - 12 was :
(A) 33.68 (B) 30.5 (C) 31.35 (D) 36.82
57. Which of the following is included in the Child Labour (Prohibition and Regulation) Act of 1986 ?
(A) Work in the railways (B) Work as domestic servants
(C) Work in ports (D) All of the above
58. The principal objective of the MUDRA Bank is :
(A) Facilitating the expansion of selected big industrial units.
(B) To bring stability to micro finance system.
(C) Sustainable development in rural area.
(D) Technological assistance to urban small scale Industrial units.
59. According to 2004 - 2005 prices, the growth of service sector during the first year of the Twelfth plan (2012 - 13) was :
(A) 6.96% (B) 9.67% (C) 10.27% (D) 6.78%

60. Self - Employment and Talent Utilisation (SETU) mechanism established by the central Government comes under :
 (A) MGNREGA (B) PMSBMY (C) NITI Aayog (D) PMAGY
61. The slope of the line through the points (1, 1) and (4, 4) is :
 (A) 3 (B) 1 (C) 4 (D) $\frac{1}{3}$
62. If U is the universal set and ϕ the empty set, then for any subset A of U, which of the following is false ?
 (A) $A \cap U = A$ (B) $A \cup A' = U$ (C) $A \cap A = A$ (D) $A \cap A' = A$
63. The domain of the real valued functions $f(x) = \sqrt{9-x}$ is :
 (A) $-\infty < x \leq 9$ (B) $9 \leq x < \infty$ (C) $-9 < x < 9$ (D) $x \geq 0$
64. The value of $\lim_{x \rightarrow 0} \frac{3x^2 - 7x}{5x^2 + 7x - 8}$ is :
 (A) -8 (B) $\frac{3}{5}$ (C) 0 (D) ∞
65. The derivative of the function $\sin^{-1}(\sqrt{1-x^2})$ is :
 (A) $\frac{-1}{\sqrt{1-x^2}}$ (B) $\frac{1}{\sqrt{1-x^2}}$ (C) $\frac{\pi}{2} - x$ (D) -1
66. If the total cost C of making x units of a product is $C = 0.03x^3 - 0.04x^2 + 8x + 10000$ then the marginal cost at 100 units output is :
 (A) 1000 (B) 900 (C) 400 (D) Data insufficient
67. The integral of $\frac{a^x}{\log_e a}$ is :
 (A) $\frac{a^x}{\log_e a} + C$ (B) $x + C$ (C) $\frac{a^x}{2 \log_e a} + C$ (D) $\frac{a^x}{(\log_e a)^2} + C$
68. A dealer got a profit of 20% by selling an article for ₹ 144. If he wants to make a profit of 30%, the selling price should be :
 (A) ₹ 156 (B) ₹ 216 (C) ₹ 96 (D) ₹ 148.33

69. Which of the following statements about any two square matrices of the same order is false ?
(A) Addition is associative (B) Multiplication is commutative
(C) Multiplication is associative (D) Addition is commutative
70. The value of $\log_{2\sqrt{3}} 1728$ is :
(A) 3.2375 (B) 4.0000 (C) 6.0000 (D) 6.2375
71. The supply and demand curves are respectively $y=8x$ and $y=20-x^2$. Then the equilibrium price is :
(A) 2 (B) 0 (C) 17 (D) 16
72. In a survey regarding the alcohol consumption of people in a village it was observed that 55% of the people consume liquor A, 52% liquor B, 40% liquor C, 30% liquor A and B, 25% liquor B and C, 20% liquor A and C and 10% all the three brands. The percentage of people in the village those who do not consume any kind of liquor of the above three kinds is :
(A) 82% (B) 47% (C) 18% (D) 13%
73. The derivative of the function $2\sqrt{\pi x}$ is :
(A) $\frac{1}{2\sqrt{\pi x}}$ (B) $\sqrt{\frac{\pi}{x}}$ (C) 1 (D) $\frac{1}{\sqrt{x}}$
74. Which of the following statements regarding the extreme values of the function $f(x)=x^3$ is true ?
(A) has no maximum
(B) has no minimum
(C) has both maximum and minimum
(D) has neither a maximum nor a minimum
75. If an amount of ₹ 12,540 is divided among A, B and C so that A shall receive $\frac{3}{7}$ as much as B and C together receive, then A must get :
(A) 5374.29 (B) 3762 (C) 4180 (D) Data insufficient
76. The value of $1 + \frac{1}{2} + \frac{1}{2^2} + \frac{1}{2^3} + \frac{1}{2^4} + \dots$ is :
(A) 1.5 (B) $\sqrt{2}$ (C) 2 (D) 2.4
77. The sum of the first 20 odd natural numbers is :
(A) 400 (B) 210 (C) 420 (D) 2870

78. The sum of 11 consecutive terms of an AP is 132. Then the 6th term is :
(A) 22 (B) 66 (C) 12 (D) 6
79. The number of ways in which the letters of the word ACCOUNTANT can be arranged among themselves is :
(A) 45,360 (B) 3,62,880 (C) 504 (D) 15,120
80. What does the range address A1 : D4 in Microsoft Excel worksheet indicate ?
(A) The two cells A1 and D4
(B) The four diagonal cells for A1 to D4
(C) All cells in the sheet except A1 and D4
(D) All the 16 cells from A1 to D4 in the 4 rows and 4 columns
81. 'Kanni 10 Day' (Malayalam month - Kanni) was commemorated by the progressive people of Kerala in connection with which of the following event ?
(A) Punnappa - Vayalar Revolt
(B) Temple Entry Proclamation
(C) Deportation of Swadesabhimani K.Ramakrishna Pillai
(D) Birthday of Sree Naryana Guru
82. Which newspaper from Malabar was known as 'The Bible of the Tiyyas' ?
(A) Sujananandhini (B) Mithavadi
(C) Sugunabodhini (D) Kerala Kaumudhi
83. A Malayalam novel published in 1978 which depicts the story of a village around 250 years and consists of around 380 characters; but there are no hero or heroine. It also reveals the transformation of the social life in Travancore. Which is that novel ?
(A) Oru Desathinte Katha of S.K. Pottakkad
(B) Kayar of Thakazhi Sivasankara Pillai
(C) Avakasikal of Vilasini
(D) Khasakkinte Ithihasam of O.V. Vijayan
84. The famous Muthukulam Speech was made by :
(A) C.V. Kunjuraman (B) C. Kesavan
(C) K.Sukumaran (D) Mannath Padmanabhan
85. Which among the following personalities have the credit to be jailed by the Travancore government for five months during the Vaikom Satyagraha period and fifteen months imprisonment at the Singapore Jail during the Second World War Period ?
(A) K.P. Kesava Menon (B) E.V. Ramaswami Naicker
(C) Captain Lakshmi (D) Mullasseril Narayanan Nambi

86. Match the following :

A				B
(a)	S N D P			(i) St. Kuriakose Elias Chaavara
(b)	N S S			(ii) V. Janamma
(c)	P R D S			(iii) Dr. P. Palpu
(d)	C M I			(iv) Panangottu Kesava Panikkar
	(a)	(b)	(c)	(d)
(A)	(iii)	(iv)	(ii)	(i)
(B)	(iii)	(ii)	(iv)	(i)
(C)	(ii)	(iii)	(iv)	(i)
(D)	(iv)	(ii)	(iii)	(i)

87. Who was known as 'The Father of tile industry in Kerala' ?

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|---------------------|--------------------|
| (A) Benjamin Bailey | (B) William Carrey |
| (C) George Plub | (D) Col. Munroe |

88. Who was the only Malayali mentioned by Gandhiji in his Autobiography ?

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|----------------------|---------------------------|
| (A) T.K. Madhavan | (B) Barrister G.P. Pillai |
| (C) T.K. Velu Pillai | (D) K.Kelappan |

89. "I have been touring different parts of the world. During these travels I have had good fortune to come into contact with several saints and rishis. But I have frankly to admit that I have not come across one who is spiritually greater than Swami Narayana Guru of Malayalam". Who made the above statement ?

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|-------------------------|--------------------|
| (A) Rabindranath Tagore | (B) Mahatma Gandhi |
| (C) C.F. Andrews | (D) Romain Rolland |

90. Who wrote the work, 'Kaattile Jyeshthan' ?

- | | |
|--------------------------|------------------------------------|
| (A) K.P. Vallon | (B) Ponkunnam Varkey |
| (C) Pandit K.P. Karuppan | (D) Kurur Nilakandan Namboodiripad |

91. The present logo of University Grant Commission (UGC) was designed by :

- | | |
|-----------------------|--------------------|
| (A) Anjali Gupta | (B) Priya Jayanand |
| (C) Arun Vijayaraghav | (D) Udaya kuamar |

92. Gandhi - Irwin Pact signed on :

- | | |
|--------------------------------|---------------------------------|
| (A) 5 th March 1931 | (B) 21 st March 1931 |
| (C) 29 th May 1932 | (D) 21 st March 1932 |

93. Indian Space Research Organization (ISRO) was started in the year :

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|----------|----------|----------|----------|
| (A) 1979 | (B) 1969 | (C) 1970 | (D) 1966 |
|----------|----------|----------|----------|

94. Which state is the largest producer of saffron in India ?

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|---------------|-----------------------|
| (A) Karnataka | (B) Jammu and Kashmir |
| (C) Punjab | (D) Andhra Pradesh |

95. The famous E - Commerce Company FLIPKART founded by :
(A) Sanjay Prakash and Bobby Prakash
(B) Sergey Bin and Larry Page
(C) Sachin Bansal and Binny Bansal
(D) Sachin Sanyal and Kanu Sanyal
96. Who wrote the famous novel, 'The Rebel Generation' ?
(A) Virginia Woolf
(B) Mary Woodstonecraft
(C) Jumba Lahri
(D) Kuller Johanna
97. Fort Pokhran is situated at :
(A) Jaisalmer (B) Malwa (C) Peshwar (D) Fathehpur Sikri
98. 'RAMMASUN' a typhoon hit in the Philippines in 2014, the Thai (Siamese) word RAMMASUN means :
(A) God of Thunder
(B) Fire
(C) The Disaster
(D) God of the Sea
99. Which sea literally means "The middle of the Earth" ?
(A) Caspian Sea
(B) Pacific Ocean
(C) Bay of Siberia
(D) Mediterranean Sea
100. Which among the following cricketers died due to injury in the field in 2014 ?
(A) Jimmy Welsh
(B) Philip Joel Hughes
(C) Martin Hughes
(D) Norman Philip

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