

**Andhra Pradesh Public Service Commission**

**Decision of Commission Dt.14/03/2017 on objections to questions in AEE Main Examination (06/2016)**

**General Studies & Mental Ability - AEE - 2016 Main**

Question ID	Description	Option 1	Option 2	Option 3	Option 4	Key	Final Key	Decision of Commission
5799651694	Name the country with which India signed the MOU for cooperation in traditional medicine and homeopathy	Mauritius	Sri Lanka	Bangladesh	Nepal	3	1 and 3	Both options 1 and 3 are treated as correct
5799651712	As per estimates, the Cash to GDP Ratio in India is about	12%	15%	18%	25%	1	0	As period and source is not mentioned, the question is ambiguous and deleted
5799651717	Merchandise exports from India (MEIS) has been replaced by which of the existing scheme	Focus Production Scheme	Focus Market Scheme	Visesh Krishi Gramin Udyog Yojana	All the given answers are correct	4	0	Question wrongly framed in reverse and is deleted
5799651723	Which of the following is considered to be a key part of the new concept of economic development	Sustained annual increase in GDP	Structural Transformation	Eradication of Poverty	Protection of Environment	4	0	Ambiguous question and hence deleted
5799651724	Identify a non-economic factor in the economic development among the following	Capital formation	Marketable Agricultural Surplus	Conditions in foreign trade	Human Resources	4	0	All the given factors are economic in nature and hence question does not have a unique answer and is deleted
5799651728	In India, the infant mortality rate declined from 146 per thousand in 1951 to how many per thousand in 2014	40	45	35	39	1	4	Correct answer is option 4
5799651772	What was the age of Mahatma Gandhi when he came back to India from South Africa?	36	40	44	46	4	0	The correct answer is 45 years 3 months. As completed age is considered, the answer is 45 years. As the answer is not present, question is deleted
5799651789	Which one of these Acts put "Water" under provincial Jurisdiction	Government of India Act, 1919	Government of India Act, 1909	Government of India Act, 1935	Government of India Act, 1915	1	1 & 3	Both options 1 and 3 are treated as correct
5799651791	Which of the following is a water soluble vitamin	Vitamin A	Vitamin B	Vitamin C	Vitamin D	3	2 & 3	Both options 2 and 3 are treated as correct
5799651793	What is the structure of RNA	Single Helix	Double Helix	Multi helix	Linear	1	1 & 2	Both options 1 and 2 are treated as correct
5799651803	Which type of disaster is a "land slide"	Hydrological	Geophysical	Climatological	Meteorological	1	1 & 2	Both options 1 and 2 are treated as correct

Note: All the other objections are untenable. After removal of 5 questions referred above, scaling of marks would be done from 145 to 150

Civil & Mechanical - Paper 2 - AEE - 2016 Main

Question ID	Description	Option 1	Option 2	Option 3	Option 4	Key	Final Key	Decision of Commission
5799651383	A compound bar having two members X and Y of length $L$ when subjected to tensile force $P$ would have elongation equal to (in usual notations)	$\frac{PL}{A_x E_x + A_y E_y}$	$\frac{PL}{A_x E_x} + \frac{PL}{A_y E_y}$	$\frac{PL}{A_x E_x - A_y E_y}$	$\frac{PL}{A_x E_x} - \frac{PL}{A_y E_y}$	1	0	Clarity is lacking in the question and some data is missing. Hence question deleted
5799651396	Which of the following is giving correct relation between load ( $w$ ), shear force ( $F$ ) and bending moment ( $M$ )	$\frac{dF}{dx} = M$	$F = \frac{dM}{dx}$	$w = \frac{dM}{dx}$	$M = \frac{dw}{dx}$	2	0	The relation amongst the 3 variables at a time is not defined in the answer and hence the questions lack clarity. Question is deleted
5799651400	If a timber beam 8 cm wide and 16 cm deep is to be converted into an equivalent steel section of the same depth for analysis purpose, then the width of the equivalent section for a modular ratio of 20 will be	160 cm	2.5 cm	0.4 cm	12 cm	3	0	The concept of flitched beam is used but clarity is lacking on the point that whether the beam is flitched or not. Hence question deleted
5799651401	If the average shear stress in a rectangular section beam is 5 N/sq.mm, then maximum shear stress for the circular section of the equal area is	7.50 N/sq.mm	6.65 N/sq.mm	10 N/sq.mm	2.50 N/sq.mm	2	0	In question, area of both sections is same. What about SSF is not mentioned. Question lacks clarity and hence deleted
5799651419	An element is subjected to $p_x=35$ MPa and $p_y = 20$ MPa and shear stress $q = 7.5$ MPa. Then the direction of principal stresses is	$-45^\circ$	$-22.5^\circ$	$-30^\circ$	$-15^\circ$	2	0	Since it is given as stresses, both angles must be mentioned 22.5 and 112.5. The question lacks clarity and hence deleted
5799651456	With reference to the containers of different shapes having the same base area and filled with the same liquid for equal depths, the apparent contradiction in the hydrostatic force on the base of a liquid container and the weight of liquid in the container is known as	<i>D' Alembert's paradox</i>	<i>Hydrodynamic paradox</i>	<i>Elevator Paradox</i>	<i>Hydrostatic paradox</i>	2	4	Correct option is 4.
5799651479	The average coefficient of friction drag for turbulent boundary layer is expressed by	$0.664/\sqrt{Re}$	$0.664/(Re)^{1/5}$	$0.074/(Re)^{1/4}$	$0.074/\sqrt{Re}$	3	0	The question has no answer and hence deleted
5799651481	The entrance length or length of establishment of turbulent flow in pipes is	<i>Inversly proportional to pipe dia</i>	<i>proportional to Reynolds number (Re)</i>	<i>proportional to <math>Re^{0.25}</math></i>	<i>proportional to <math>Re^{0.6}</math></i>	3	0	The question has no answer and hence deleted
5799651499	A pitot static tube having coefficient of velocity 0.98 measures velocities of water in a pipe. The stagnation pressure recorded is 3 m and static pressure 2 m. The actual velocity in pipe is	4.429 m/s	4.341 m/s	4.431 m/s	Zero	1	2	Option 2 is the correct option
5799651500	The velocity in m/s at a point in a 2D flow is given by $v = 2y + 3xj$ . The equation of streamline passing through the point is	$3dx - 2dy = 0$	$2x + 3y = 0$	$3dx + 2dy = 0$	$xy = 6$	1	0	The question has no answer and hence deleted
5799651523	A reaction turbine discharges 35 cu mts/sec under a head of 9 m and with an overall efficiency of 91%. The power developed in kW is	286.65	37.49	3.822	28.665	3	0	The question has no answer and hence deleted

Note: All the other objections are untenable. After removal of 9 questions referred above, scaling of marks would be done from 141 to 150

**Agricultural Engineering - Paper 2 - AEE - 2016 Main**

Question ID	Description	Option 1	Option 2	Option 3	Option 4	Key	Final Key	Decision of Commission
5799651542	One liter of water occupies a volume of	100 cm <sup>3</sup>	250 cm <sup>3</sup>	500 cm <sup>3</sup>	1000 cm <sup>3</sup>	1	4	Correction option is 4

Note: All the other objections are untenable.

**Agricultural Engineering - Paper 3 - AEE - 2016 Main**

Question ID	Description	Option 1	Option 2	Option 3	Option 4	Key	Final Key	Decision of Commission
5799652371	The ratio of water stored in the root zone of the plants to water delivered to the field is termed as a	Water storage efficiency	Water use efficiency	Water application efficiency	Water distribution	2	3	Option 3 is correct
5799652377	A plot between rainfall intensity versus time is called as	Hydrograph	Mass curve	Hyetograph	Isohyet	2	3	Option 3 is correct

Note: All the other objections are untenable.

**Civil Engineering - Paper 3 - AEE - 2016 Main**

Question ID	Description	Option 1	Option 2	Option 3	Option 4	Key	Final Key	Decision of Commission
5799653037	The main constituent of cement which is responsible for initial setting of cement is	<i>Dicalcium silicate</i>	<i>Tricalcium silicate</i>	<i>Tricalcium aluminate</i>	<i>None of the above</i>	3	2	Correct option is 2
5799653041	The artificial seasoning method that causes timber to become brittle and easy to bear is	<i>Boiling</i>	<i>Chemical seasoning</i>	<i>Electrical seasoning</i>	<i>Kiln seasoning</i>	1	4	Correct option is 4
5799653047	The ratio of maximum deflection flexural stree in a simply supported beam of span l and depth d subjected to a concentrated load at mid span is	$l^2/(6Ed)$	$l^2/(8Ed)$	$l^2/(16Ed)$	$l^2/(60Ed)$	1	0	Answer is correct as per key but there is a drafting error in the options of the question. Hence, question deleted
5799653048	The horizontal deflection at C for the frame loaded and supported as shown below	$Ml^2/(4EI)$	$Ml^2/(2EI)$	$Ml^2/(3EI)$	$2Ml^2/(EI)$	2	0	Answer is correct as per key but there is a drafting error in the options of the question and the figure of this question got printed in the previous question. Hence question deleted
5799653053	A parabolic rib of span 30m, is hinged at the spring and crown and is having a central rise of 5 m. If the coefficient of thermal expansion for the arch material is $12 \times 10^{-6}$ per OC the effect of temprature rise of 300C is	<i>to cause thermal stresses</i>	<i>to cause thermal stresses as well as a central rise of 18 mm</i>	<i>to cause a central rise of 18 mm</i>	<i>to cause no effect on the structure</i>	3	0	Answer is correct as per key but there is a drafting error in the question itself in the quantity of temperature. Hence, question deleted
5799653057	Which of the following is displacement method	<i>flexibility method</i>	<i>moment distribution method</i>	<i>Kani's method</i>	<i>None</i>	2	2 & 3	Both 2 & 3 options are correct.
5799653058	For the structure shown, the elements of the flexibility matrix are	$F_{11} = 1/(EI); F_{21} = 12/(2EI)$ $F_{12} = 12/(2EI); F_{22} = 13/(3EI)$	$F_{11} = 13/(3EI); F_{21} = 12/(2EI)$ $F_{12} = 12/(2EI); F_{22} = 1/(EI)$	$F_{11} = 1/(EI); F_{21} = 12/(EI)$ $F_{12} = 12/(EI); F_{22} = 13/(3EI)$	$F_{11} = 1/(EI); F_{21} = 12/(2EI)$ $F_{12} = 12/(2EI); F_{22} = 13/(4EI)$	1	0	Answer is correct as per key but there is a drafting error in the options of the question. Hence, question deleted.
5799653070	In Pigeaud's coefficient method for the analysis of an interior panel of a T beam Bridge	<i>Notiation for coffiecient as ox4 and oxy4 includes suffix since panel is contiuous on all the 4 edges</i>	<i>Poisson's ratio of concrete has no contribution</i>	<i>Applicability is restricted to the case when wheel load is centrally placed</i>	<i>Depression of load is considered through wearing coat only</i>	3	0	Out of syllabus. Hence, question deleted
5799653075	In a footing, it is usual to assume that the maximum value of transvers bending will occur at a disatnce, equal to	<i>half the effective depth</i>	<i>effective depth</i>	<i>twice the effective depth</i>	<i>None</i>	2	4	Correct Option is 4
5799653111	Flow duration curve is a convenient tool to assess the available at the site	Firm power	Secenary power	Tertiary Power	Average Power	1	0	Out of syllabus. Hence, question deleted
5799653118	Three turbines each of capacity 10,000 kW are installed at a hydel power station. If the peak load and the avearge load produced during a certain period are 25,000kW and 15,000 kW respectively, then load factor and plant factor are respectively equal to	<i>60% and 50%</i>	<i>50% and 60%</i>	<i>40% and 50%</i>	<i>50% and 40%</i>	1	0	Out of syllabus. Hence, question deleted
5799653123	The mimimum dia for public sewer is hilly areas where steep slopes are prevalent is	<i>300</i>	<i>150</i>	<i>100</i>	<i>50</i>	3	0	Ambiguity in the question , units not mentioned. Hence, question deleted
5799653130	The collapsible soil is associated with	Dune Sands	Laterite Sands	Loess	Black Cotton Soils	4	3	Correct Option is 3

5799653164	In levelling, curvature correction is given by	$C_c = D^2/(R)$	$C_c = D/(2R)$	$C_c = D^2/(2R)$	$C_c = D/R$	3	0	Answer is correct as per key but there is a drafting error in the options of the question. Hence, question deleted
Note:	All the other objections are untenable. After removal of 9 questions referred above, scaling of marks would be done from 141 to 150							

**Mechanical Engineering - Paper 3 - AEE - 2016 Main**

Question ID	Description	Option 1	Option 2	Option 3	Option 4	Key	Final Key	Decision of Commission
5799652436	The efficiency of Diesel cycle approaches to Otto cycle efficiency when	Cut-off is increased	Cut-off is decreased	Cut-off is zero	Cut-off is constant	3	0	Dual to be mentioned in place of Diesel. Question deleted
5799652446	For effective working of fins, the thickness of the fins should be	large	small	thickness of fin does not affect fin effectiveness	unpredictable	1	2	Correct option is 2
5799652455	The capillary tube is not used in large capacity refrigeration systems because	Cost is too high	Capacity control is not possible	It is made of copper	Required pressure drop cannot be achieved	2	4	Correct option is 4
5799652468	The volumetric efficiency of a compressor can be given by the equation in terms of clearance ratio K, pressure ratio $p_2/p_1$ is	$1 - K + K(p_2/p_1)^{(1/n)}$	$1+K-K(p_2/p_1)^{(1/n)}$	$1-K-K(p_2/p_1)^{(1/n)}$	$1+K+K(p_2/p_1)^{(1/n)}$	1	2	Correct option is 2
5799652486	A 0.5 kg weight attached to a light spring elongates by 0.981 mm. The natural frequency of the system should be	6 Hz	16 Hz	26 Hz	32 Hz	4	2	Correct option is 2
5799652487	A vibrating system with unity as damping factor will be	critically damped	damped to safe limits	partly damped	free from vibrations	2	1	Correct option is 1
5799652496	The factor of safety considered for Euler's formula for crippling load is	1	3	5	6	1	2	Correct option is 2
5799652499	A composite shaft consisting of two stepped portions having spring constant $k_1$ and $k_2$ is held between two rigid supports at the ends. Its equivalent spring constant is	$(k_1 + k_2)/2$	$(k_1 + k_2) / k_1 k_2$	$k_1 k_2 / (k_1 + k_2)$	$(k_1 + k_2)$	4	3	Correct option is 3
5799652514	Internal gears can be manufactured by	Shaping with rack cutter	Shaping with pinion cutter	milling	Hobbing	4	2	Correct option is 2
5799652558	In time study the rating factor is applied to determine	Standard time of job	Merit rating of the work	Normal time of working	Fixation of incentive rate	4	3	Correct options is 3
5799652571	Reheating in a gas turbine	increases the compressor work	increases the turbine work	decreases the thermal efficiency	increases the thermal efficiency	4	2 & 4	Correct options are 2 and 4
Note:	All the other objections are untenable. After removal of 1 question referred above, scaling of marks would be done from 149 to 150							

( Y V S T Sai )  
Secretary