32. The following table gives daily income of 50 workers of a factory :

Daily income (in ₹)	Number of workers
100 - 120	12
120 - 140	14
140 - 160	08
160 - 180	06
180 - 200	10

Find the mean, mode and median of the above data. 6

~~~~~~~

2015
THE MORAL EDUCATION CENTRE
MATHEMATICS

Full Marks - 80
Time : Three hours
Attempt all questions.

For Question Nos. 1 to 5, write the letter corresponding to the correct answer.

The figures in the right hand margin indicate full marks for the questions.

1. The exponent of 3 in the canonical decomposition of 17640 is : 1

   (A) 1 (B) 2
   (C) 3 (D) 4

2. If x = a and y = b is the solution of the pair of linear equations x - 2 = y and x - 4 = -y, then the values of a and b are respectively: 1

   (A) 3 and 1 (B) 1 and 3
   (C) -3 and -1 (D) -1 and -3

3. If $ax^2 + bx + c = 0$ has equal roots, then c is equal to: 1

   (A) $-\frac{b}{2a}$ (B) $\frac{b}{2a}$
   (C) $-\frac{b^2}{4a}$ (D) $\frac{b^2}{4a}$

Contd/-
~~~~~~~

4. The slant height of a right circular cone is 10 m and its height is 8 m. Then, the area of its curved surface is : 1

(A) 30 π m^2 (B) 40 π m^2

(C) 50 π m^2 (D) 60 π m^2

5. Two dice are thrown simultaneously. What is the probability of getting two numbers whose product is even ? 1

(A) $\frac{1}{2}$ (B) $\frac{3}{4}$

(C) $\frac{3}{8}$ (D) $\frac{5}{16}$

6. If $|x-2| = 3$, write the values of x. 1

7. Find the constant remainder when $2x^2 - x + 3$ is divided by x + 1. 1

8. The n^{th} term of a sequence is 2 - 5n. Is the sequence an AP ? 1

9. If α and β are the roots of the quadratic equation $ax^2 + bx + b = 0$, what is $\alpha\beta$ equal to ? 1

10. Write the statement of Thale's Theorem. 1

11. What is the value of $\sin^2\frac{\pi}{5} + \cos^2\frac{\pi}{5}$? 1

28. Draw a triangle ABC in which AB = 7 cm, BC = 6 cm and AC = 5 cm. Then construct a triangle similar to the triangle ABC with its sides equal to $\frac{5}{3}$ of the corresponding sides of the triangle ABC. Write the steps of construction. 3 + 2 = 5

29. The angles of depression of the top and the bottom of a 7 m tall tree from the top of a tower are 45^0 and 60^0 respectively. Find the height of the tower. 5

30. A canvas-tent is in the form of a cylinder of diameter 16 m and height 5 m surmounted by a cone of equal base and height 6 m. Find the capacity of the tent and the cost of the canvas at Rs 150 per square metre [use π = 3.14]. 5

Or,

From a cone of height 18 cm, a smaller cone is cut off by a plane parallel to the base. If the volumes of the cones are in the ratio 1 : 27, find the height of the resulting frustum.

31. If the corresponding sides of two triangles are in the same ratio, then prove that the two triangles are similar. 6

Or,

State and prove SAS Similarity Theorem.

12. Find the curved surface area of a cylinder of radius 3 cm and height 7 cm. 1

13. When are events of a random experiment said to be mutually exclusive ? 1

14. Using Factor Theorem, determine whether $q(x) = x + 1$ is a factor of $p(x) = 2x^3 + x^2 - 2x - 1$. 2

15. Solve the following pair of linear equations by cross-multiplication method. 2
$ax + by = a - b$
$bx - ay = a + b$

16. Find the 15^{th} term from the last term (towards the first term) of the AP : 3, 7, 11, ..., 123. 2

17. Find the value of $\frac{\sin 28^0 53'}{\cos 61^0 7'} - \frac{\cos 61^0 7'}{\sin 28^0 53'}$ 2

18. Three unbiased coins tossed. Find the probability of getting at most two heads. 2

19. Factorise : $b^2c^2(b^2 - c^2) + c^2a^2(c^2 - a^2) + a^2b^2(a^2 - b^2)$. 3

20. Show that any number of the form 6^n, $n \in N$ can never end with the digit 0(zero). 3

21. Solve graphically : 3
$2x + y = 6$
$x - 2y = 8$

Contd/-

22. In two concentric circles, prove that a chord of the larger circle which is a tangent to the smaller circle is bisected at the point of contact. 3

23. Find the value of
$\sin^2 1^0 + \sin^2 3^0 + \sin^2 5^0 + ... + \sin^2 87^0 + \sin^2 89^0$. 3

24. A metallic sphere of radius 6 cm is melted and recast to form a cylinder of radius 3 cm. Find the curved surace area of the cylinder. 3

25. If a is divisible by neither 2 nor 3, show that $a^2 - 1$ is divisible by 24. 4

Or,

Find the least multiple of 11 which when divided by 6, 7 and 10 leaves the same remainder 4 in each case.

26. A train covered a certain distance at a uniform speed. If the train would have been 10 Km/hr faster, it would have taken 2 hours less than the scheduled time. And, if the train were slower by 10 Km/hr, it would have taken 3 hours more than scheduled time. Find the distance cover by the train. 4

27. Determine the ratio in which the point P(10, m) divides the join of A(5, 2) and B(17, 14). Also, find the value of m. 4

Contd/-

selxg olsAe SlmlErDe fgslErDcgG Wq mldSg ? SlmlErD [aKi fgslErDcgGe aldeSgqxg ajAKgi wg\i `` 1+2=3

mlE aalir qjmgE Koj sjA fyjAag ? 2

[wlEq zljG [0Teq o0GeSgq egiFyjlE [axg aagi T\i `` 1

sjg Bjlqrxg [K0de Klq agoy vlBT olTq SlSgqxl ? 1

~~~~~~~~~

Total number of printed pages - 6

2015

THE MORAL EDUCATION CENTRE

MANIPURI

Full Marks - 80

Time : Three hours

Attempt all questions.

The figures in the right hand margin indicate full marks for the questi

_lolvl [Kg 's' 'K' 'm' 'a' olTe slimN ajg F0de SlTr0 _lol Slrgixg ald \lGFlq awlEr wgjg `` eKlxg _lop KgcgEerle wlBSlA wg\i ``

slimN 's'

(wlq)

1. aSlxg _ljli sfld [Kg wljx olmgq _lolKgixg wlBSlA wg\ agfp _lopr sjg olT -"vldKgEmx vld-\lA KlT, Wlr0 KlT ``vli elTe vlrgi fyq olTq [Kg [pS0T ag[0Tqxg mlF0dv wFlNeg, eGfDqrg [_lq [elq [Kge flTql ag[0Te wlEqr el olTq [r Wlq flT `` vli elTe vlrgi fyq [Kg [vlAqeg olTq fliqlEqxg ogjA fyr0d Slrgiadf Bq Wlmg `` fliqlEq [Kgr w0G [af aliq mpfl `` aS0d m0Tjq mpjlie almlA Fdf slE fyTxlAqKli arlade [ald [eyq opjlz [0Erle wDgFgqg mpfliZg `` s0jyoEqxg \ldmq aKlde wlG fljlE KalrDxg mlT [0Te vglSGmg `` aegM [rlade [eyq mlTc [0Erle almlA Fdf Syjlimq cgq, wlAqgKgixg [_lq s0doEmg `` [KlAe flTqlwlE [aliq olTq w0G mpfl `` [Kg \ye FyclM opjq [aKli w TKDjade aoyKlzg mpjgd eGfDx TKgi ajgd [afl \ye alioEre \lAe mgdwxg afy BGmg `` ajA [Kge [jlAqr eGfDx Wlr0dw olTq [Kg aoyKlxg oyeqg slTq eg\Aeg ``

(s) fliqlEq [Kgr sjgxAq w0G [af aliq mpfl olTqx [0Tq SlrA [eg wg\i ``
~~~~~~~~~

(K) vli elTe vlrgi fyrq age sjg Wlq flT ? 1

(m) flTql KlAq awlxg [wlAq sjge0 ? 1

(a) "vldKgEmx vld\lA KlT, Wlr0dmx Wjl KlT" olTqKge SloEmgqKg sjge0 ? 1

(w) aFdsg _ljli afld [Kgrxg sjAq _lope 'Fr0dw' olTq _lopx [jF alEeqxl ? 1

zljGsg ewgKgie alTsp s\lajlAr ewlKgirxg flq mpflDqqK avlewg w0dw ojlBerDgqxg ajAKgi wg\l `` 2

s0jler wgjAq alKmgA [ae wlEKgr TExrq slim0E [eg T\l `` 2

qDgfgKe aegwlj old myKgESgqx mpwldKgr sjg sjg [Fgiq FAag ? 2

KlTEK flde0m0cgx ag[0Tqr sele olee ajl m0T ? 1

Balxg w0GF0d oEFoEmdwxg ajA [a wg\l `` 1

Sloyre F0dw Slr0iFgq olTqKg aSM s\l F0de SlTr0dw \lqxl? 1

[0df0qj Flr [lzjlKG slerDgq sjgxge0 ? 1

aldfg \lR clrXj mgGSGSgqxg wlErA sjge0 ? 1

slimw 'K'
(Tq)

aSlxg ogjAKgi [Kgrxg [afl SMmx _loyr0d [aKi _lj0TKgE \lBoErle _lop 150-160 j0Axg aelir _ljli ([lKl) [a T\l `` 7

(s) FdKg SlKg [aKi aopj0T

(K) qgxDEe ag[0Tqr wgjgq slEeq [aKi [aliq

eGfDx

(K) "mpa s0Exg avl Klmq age0d [aKi _lopxg clrr alSDl ag wlirqxg [K0Eqxg Kjlir m0GSDl ewliKd [0Tjrle wljF aj0E F0dSgrDl aRKrE" ``

25. "[pxg SlEc" olTq Kpjlir sqge alxg SlEclKgiq s\ eliKgqxl ?

26. "mlGvxeg elxg wlDfgalr0 " `` 'elxg wlDfgal' olTqKg selxg wlDfgale0 ?

27. ag[0Tqxg KzlDfle a0iWA [0T olTjgq sjgxge0 ?

28. \lBWA [arg ajg aS0i flflle KEr0de flB ``

(s) "K0TrDgZpr WgzA [a KlAoyeq olTqeg o\li ZlKl vgqlEr0ixg wlAa elKl [pKl wlAKg olTqr0 flre olTcoyjgq" ``

eGfDx

(K) "sq0dmp zlq Slf fljdT `` K0j awg [a Klie o0EFjr "rlrg e0ia mldvjxl" olTjAmx S0imp Fle F0jdml ``"

29. "selxg aEfjg" olTq _ljg avlKgr [Tqe wgegimgq wlBcl sjge0 ?

30. slmlEFlr agKDmlEe alxg ajAr vGfDgq sjgxge0 ?

31. age sjg olTSgxrxl olTqKgxg [sgqx mlTw0dslAq ag[0TqK [0Ee-fpeq _lSMm0EKgirl sjg sjge0 ?

32. Kolqe m0T vEmq afAr zljGsg KzlDf [aKi KlKsDgfgr sjg [o0iq mldwxl ?

11. (s) eo\d Kgicapr mpq [\ldwA q0Tv\eg o\Te SMm\ ``
a0Tj\ir mpq elxg aj\N K\wA j0agr f\ir agF0T agc
[0Teq eo\ [0TjgZprxg sjg sjg fyxrxl o\Tq _
wEr\e _op 130 j0Axg v\ir vgFg [a T\ ``

eGfDx

(K) eo\d "a0jegi o\TKDMxg" sDK **(X)** xg sDK sl
cl\Eeg o\Te SMm\ `` m\dmgq [0df0qj F\Kgr aop fAqx
mpee a0Tj\ir mA \liqxg FyjA [a w\iF0dwg\ c
eS0Txg olr a\Kfjr rjS\K [a T\ `` (_op 130 xg
Txrqeg)

12. aSxg w\Bjy\Kgi [Kgxg ae\irxg [a SMmx ae\ixg zq KE
f\dfe T\ ``

(s) Fyq\Er0i vWq sTeq \pqD ``

(K) TKgi FErq vWe aS0E F0dT ``

13. (s) K0d 2015 K\NfAqj Fxg f\i 5 r eo\dsg ea\Eeq
m0Tee vGagEej\q wgsgegd [r\r eo\de Flie
[arg WBjdw _SMr\ _op 120 j0Axg v\ir T\ ``

eGfDx

(K) oySgq Fr KIKDE [ae aegwjr cleljlE TKDd sySg
e\agGf\r elxg qqxg [e\q [r\ oyjdSg ``
ao\dw\ o0KwgfEr w\eq o0Geqr FlieSgq [_qKgir
120 j0Axg v\ir T\ ``

s\imN 'm'
(xDaj)

14. aSxg _opwjliKgr \Bjgq zjqKg sjg [lKwldf mpqxl
f0Aq ZKg w\i [eg m\Tjgd w\jAT ``

aSxg _op wjli [Kg s0TF0de wB fAqr [0EF0dB `` **1**
v\Bqe o\TSg, "[p ar\ Sml" ``

Zj\i m\dmAag o\Tq [Z\i [r\ [pxg Tv\eg ``
_op wjli [Kg [vAq _op wjlir [0EF0dB `` **1**

aS0T vGF0d-vGKge fyT ``
mpT vgimgq _opKgi [Kg sjg WDce0 ? **1**
ele wAT o\Tq m\Tjgd [r\ [pe wjdmqeg ``
_op wjli [Kgrxg e\BE sDc SEr0dB `` **1**

ag\AKgxg ae\ir jgfe \Ae wIT ``
_op wjliKg K\wjlfgz rgxDgr [0EF0dmx [ad TF0dB `` **1**

wpK\r q0Tr \lNoyqeg ``
mpT vgimgq 'q0Tr' o\TqKg sjg slKf mpqxl ? **1**
[pS0Trxg sjg w0G myjl ``

mpT vgimgq _op [Kg eAqj [0Emx _op wjliKg [ad TF0dB `` **1**

"BGf Xg opq" o\TqKge SloEmgqKg sjge0 ? **1**

"Tj\cq" o\TqKg FyxMm0E Sleq _opr sjg o\Txeg ? **1**

s\imN 'a'
(K\ogfD)

\BWA [arg ajg aS0i f\dfe KEf0de f\dB `` **5**

(s) "[pxg r\qgrg
sjeK\ og\ixrqeg ``
a\q\ aegi fAoEm\
a\q\ aegi fAoEm\
a\q\ aegi fAoEm" ``

SECTION – D
(ECONOMICS) 13 MARKS

Answer question no. 29 to 31 in a sentence each:

29. What are banks? 1
30. Give one reason why income is used as an indicator of development. 1
31. Why is secondary sector called manufacturing sector? 1

Answer question no. 32 in a about 30 words:

32. State two reasons which are reasonable for increasing importance of tertiary sector in India. 2

Answer question no. 33 in about 50 words each:

33. What are the provisions of the Consumer Protection Act 1986? 3

Answer question no. 34 in about 100 words each:

34. Discuss the various indicators of development. 5

****

Total number of printed pages - 4

2015
THE MORAL EDUCATION CENTRE
SOCIAL SCIENCE

Full Marks - 80
Time : Three hours
Attempt all questions.

The figures in the right hand margin indicate full marks for the questions.

Section – A
(Geography) 27 marks

Answer question no. 1 to 2 in a sentence each:

1. Why do we need to use minerals wisely and carefully? 1
2. Why is the Eastern Coastal Plain of India considered as the most disaster affected region in the world? 1

Answer question no. 3 to 5 in about 30 words each:

3. Give the two uniqueness of cotton crop of Manipur. 2
4. Suggest two steps to reduce hindrances created by the different gauges of Indian railways. 2
5. Suggest two steps taken by the government to solve the problems of jute industry. 2
6. Draw a full page outline map of India and mark and label therein the following : 1+1=2
   Areas of Green Revolution

Answer question no. 7 to 10 in about 50 words each:

7. State any three factors for the depletion of forests. 3
8. Why are human being themselves an essential components of resources? Give three reasons. 3
9. Why is iron and steel industry called the basic or key industry? 3

Contd/-

10. Give three reasons why mineral are an indispensable part of our lives. 3

Answer question no. 11 in about 120 words each:

11. Explain why India agriculture needs technological reforms since independence. 5

Or,

Explain the impact of globalisation of India agriculture by giving five points.

SECTION – B
(HISTORY) 27 MARKS

Answer question no. 12 to 15 in about 50 words each:

12. "The non-violent heroism of salt satyagrahis was demonstrated at Dharnasana salt works". Justify the statement by giving three points. 3
13. How did the process of mass production in England began immediately before the end of the World War-I? 3
14. Write any three objectives of the Bretton woods conference. 3
15. Why was the Battle of Shangshak so important in the Manipur front during the second world war ? Give three reasons.? 3
16. On the map India drawn as answer to question No. 6 (Geography portion), locate the places with name, where :- 1+1=2
    (a) Mahatma Gandhi broke the salt law
    (b) The 1920 (September) session of the Indian National Congress was held.
17. What was the Acta-Diurna?' 2
18. Write two contribution of Henry Cort in the development of Iron and Steel Industry in England. 2

19. Name the two governor – Generals who were mild and liberal towards the Indian press. 2

Answer question no. 20 to 21 in one sentence each:

20. What is nationalism? 1
21. Why did Gandhiji condemn the tax on salt as the most in human poll tax? 1
22. How did Italian unification achieve in 1871 in the 19th century. 5

SECTION – C
(POLITICAL SCIENCE) 13 MARKS

Answer question no. 23 to 25 in about 50 words each

23. "Caste system has not disappeared from India" Justify the statement by citing one point. 1
24. What are the ideal for a federal system? 1
25. "Democracies are based on political equality." Give example to prove the statement. 1

Answer question no. 26 in about 30 words

26. Mention two different ways of influencing the decisions in a democracy. 2

Answer question no. 27 in about 50 words

27. Analyse the subjects that democracy shows a mixed record. 3

Answer question no. 28 in about 100 words

28. What are the federal provisions and institutions working in Indian federalism? 5