UPSEE 2019

PAPER-TE: CODE AA*

ANSWER KEY, Examination Date: 21-04-2019

1	C	26	C	51	B	76	A
2	A	27	B	52	B	77	D
3	A	28	D	53	A	78	D
4	C	29	A	54	A	79	B
5	D	30	C	55	D	80	B
6	C	31	C	56	A	81	D
7	B	32	A	57	A	82	A
8	A	33	D	58	B	83	D
9	D	34	D	59	A	84	D
10	B	35	C	60	C	85	B
11	D	36	C	61	B	86	C
12	B	37	A	62	C	87	B
13	B	38	b	63	B	88	C
14	A	39	A	64	B	89	D
15	B	40	B	65	A	90	A
16	B	41	B	66	D	91	C
17	B	42	B	67	D	92	D
18	A	43	D	68	B	93	C
19	A	44	C	69	C	94	A
20	B	45	C	70	D	95	B
21	D	46	D	71	B	96	C
22	C	47	A	72	C	97	D
23	B	48	D	73	A	98	A
24	A	49	A	74	D	99	B
25	D	50	C	75	D	100	D

Note: In case of any grievance, it must be reported at upseegrievance@aktu.ac.in along with Students Roll No. with Paper Code, Question Booklet Code, Question No. and suggested answer with supporting documents on or before 03rd May 2019.

*प्रश्न पुस्तिका क्रमांक **AA** का प्रश्नपत्र एवं कुंजी प्रकाशित की जा रही है। प्रश्न पुस्तिका क्रमांक **BB, CC** तथा **DD** में प्रश्नों एवं उनके विकल्पों का क्रम परिवर्तित है कृपया तद्नुसार उत्तर मिलान करें।

✂ ——————————————————— ✂

No. of Pages in Booklet including title	**16**	Time **2** Hours	Marks **400**	No. of Questions in Booklet	**100**

TE

Question Booklet Sr. No.

Roll No.

Signature of the Invigilator

Name of Candidate :

Q. Booklet Code

AA

INSTRUCTIONS TO CANDIDATE

1. Use BLUE or BLACK BALL POINT PEN only for all entries and for filling the bubbles in the OMR Answer Sheet.

2. Before opening the SECURITY SEAL of the question booklet, write your Name, Roll Number (In figures), and OMR Answer-sheet Number in the space provided at the top of the Question Booklet. Non-compliance of these instructions would mean that the Answer Sheet can not be evaluated leading the disqualification of the candidate.

3. Each question carries FOUR marks. There will be negative marking on wrong answer. FOUR marks will be awarded for each correct answer and ONE mark will be deducted for each wrong answer. No marks will be deducted/awarded for unattempted questions.

4. Each multiple choice question has only one correct answer. More than one answer indicated against a question will be treated as incorrect answer.

5. Use of log table, mobile phones, any electronic gadget and slide rule etc. is strictly prohibited. Non-programmable calculator is permitted.

6. Candidate will be allowed to leave the examination hall at the end of examination time period only.

7. If a candidate is found in possession of books or any other printed or written material from which he/she might derive assistance, he/she is liable to be treated as disqualified. Similarly, if a candidate is found giving or obtaining (or attempting to give or obtain) assistance from any source, he/she is liable to be disqualified.

8. OMR sheet is placed within this paper and can be taken out from this paper but seal of paper must be opened only at the start of paper.

9. This booklet contains TWO Sections, Section A (Aptitude & Mathematics) has 30 Questions to be attempted and Section B (Subject domain) has 70 Questions to be attempted.

TE

Section - A :
General Aptitude   : Q. 1 to Q. 15
Mathematics   : Q. 16 to Q. 30

Section - B :
Textile Engineering : Q. 31 to Q. 100

001. Antonym of word "Dissent" is:

(A) Renounce   (B) Adopt

(C) Agree   (D) Give

002. Synonym of work "Impudent" is:

(A) Insolent   (B) Partial

(C) Bankrupt   (D) Restive

003. Find out which part of the sentence has an error. If there is no mistake, the answer is 'No error'

(A) I have seen

(B) that film last year

(C) but I do not remember its story

(D) No error

004. Chose the correct meaning of the phrase "To get into hot water":

(A) To be impatient

(B) To suffer huge financial loss

(C) To get into trouble

(D) To be in confused state of mind

005. Find out the word with correct spelling:

(A) Brassere   (B) Brissiere

(C) Brasiiere   (D) Brassiere

006. The value of 25-5 [2+3{2-2(5-3)+5}-10]÷4 is

(A) 5   (B) 23.25

(C) 23.75   (D) 25.75

007. If the sum of a number and its square is 182, what is the number?

(A) 12   (B) 13

(C) 28   (D) 91

008. The sum of the ages of a father and his son is 45 years. Five years ago, the product of their ages was 34. The ages of the son and the father are respectively:

(A) 6 and 39   (B) 7 and 38

(C) 9 and 36   (D) 11 and 34

009. A number, when 35 is subtracted from it, reduces to its 80%. What is four fifth of that number?

(A) 70   (B) 90

(C) 120   (D) 140

010. If the ratio of areas of two circles is 4:9 then the ratio of their circumstances will be:

(A) 3:2   (B) 2:3

(C) 4:9   (D) 9:4

011. Army is related to Soldier as Galaxy is related to:

(A) Planet   (B) Satellite

(C) Meteor   (D) Star

012. IGH:TRS::?:KIJ

(A) POQ   (B) QOP

(C) OPQ   (D) QPO

013. '1+2+3' stands for the 'the brave boy' '2+3+4' stands for 'brave boy swims' '1+2+4+5' stands for 'the brave girl swims'. What stand for 'brave'?

(A) 1   (B) 2

(C) 3   (D) 4

014. Manipulate the symbol and find the missing number.

If   3*6=18

     4*7=22

     9*1=20

then 5*2 =?

(A) 14   (B) 10

(C) 7   (D) 3

015. In a row of children, Kamal is sixth from the left and Appu is fourth from the right. When Kamal and Appu exchange positions, Appu becomes seventeenth from the right. Which will be Kamal's position from the left?

(A) Twentieth

(B) Nineteenth

(C) Twenty-first

(D) Seventh

M. Tech.: Part A-(ii) Mathematics

016. If $A = \begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}$, then

(A) $A^2 = A^{-1}$ (B) $A^3 = A^{-1}$

(C) $A^4 = A^{-1}$ (D) $A^5 = A^{-1}$

where A^{-1} is the inverse matrix of A.

017. The rank of the matrix

$A = \begin{bmatrix} 1 & 1 & -1 & 1 \\ -1 & 1 & -3 & -3 \\ 1 & 0 & 1 & 2 \\ 1 & -1 & 3 & 3 \end{bmatrix}$ is

(A) 1   (B) 2

(C) 3   (D) 4

018. If $A = \begin{bmatrix} 1 & 0 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$ then for every integer $n \geq 3$

(A) $A^n = A^{n-2} + A^2 - I$

(B) $A^n = A^{n-2} - A^2 + I$

(C) $A^n = A^{n-3} + A^2 - I$

(D) $A^n = A^{n-3} - A^2 - I$

where I is the identity matrix of order 3.

019. $\lim\limits_{x \to 0} x \sin \frac{1}{x} = $

(A) 0   (B) 1

(C) ∞ (D) $-\infty$

020. If $f(x) = \begin{cases} \dfrac{x\left(e^{\frac{1}{x}} - e^{\frac{1}{x}}\right)}{\left(e^{\frac{1}{x}} + e^{\frac{1}{x}}\right)}, & x \neq 0 \\ 0, & x = 0 \end{cases}$, then

(A) f is continuous and derivable at $x=0$

(B) f is continuous but not derivable at $x=0$

(C) f is discontinuous at $x = 0$

(D) f is derivable everywhere.

021. The sum of the serie

$1 - \dfrac{1}{2^2} + \dfrac{1}{3^2} - \dfrac{1}{4^2} + ...,$ is equal to

(A) $\dfrac{\pi^2}{4}$ (B) $\dfrac{\pi^2}{6}$

(C) $\dfrac{\pi^2}{8}$ (D) $\dfrac{\pi^2}{12}$

022. The general solution of the partial differential equation

$\left(\dfrac{y-z}{yz}\right)\dfrac{\partial z}{\partial x} + \left(\dfrac{z-x}{zx}\right)\dfrac{\partial z}{\partial y} = \dfrac{x-y}{xy}$, is

(A) $\phi(xyz, x^2 + y^2 + z^2) = 0$

(B) $\phi(xyz, xy + yz + zx) = 0$

(C) $\phi(xyz, x + y + z) = 0$

(D) $\phi(xyz, x^2y + y^2z + z^2x) = 0$

023. A unit vector normal to the surface $x^3 + y^3 + 3xyz = 3$ at the point $(1,2,-1)$ is

(A) $\dfrac{\hat{i} + 3\hat{} + 2\hat{}}{\sqrt{14}}$ (B) $\dfrac{-\hat{i} + 3\hat{j} + 2\hat{k}}{\sqrt{14}}$

(C) $\dfrac{\hat{i} + 2\hat{j} + 3\hat{k}}{\sqrt{14}}$ (D) $\dfrac{-\hat{i} + 2\hat{j} + 3\hat{k}}{\sqrt{14}}$

024. The vector field defined by

$$\vec{F} = (x + 2y + az)\hat{i} + (bx - 3y - z)\hat{j} + (4x + cy + 2z)\hat{k}$$

is irrotational, if

(A) $a=4, b=2, c=-1$

(B) $a=4, b=-2, c=1$

(C) $a=1, b=2, c=4$

(D) $a=-1, b=4, c=2$.

025. The value of $\oint_c \left(x^2 + xy\right)dx + \left(x^2 + y^2\right)dy$ where C is the square formed by the lines $y = \pm 1, x = \pm 1$, is equal to

(A) 2π (B) 2

(C) 1   (D) 0

026. The only solution of the differential equation $x\dfrac{dy}{dx} - \dfrac{1}{2}y = x + 1$ for which x and y can attain the value unity is given by

(A) $y = 2x - \sqrt{x} + 2$

(B) $y = 2x + \sqrt{x} + 2$

(C) $y = 2x - \sqrt{x} - 2$

(D) $y = 2x + \sqrt{x} - 1$

027. The Laplace transform of $e^x x^{\frac{1}{2}}$ is

(A) $\dfrac{x}{\sqrt{s-1}}$ (B) $\dfrac{\sqrt{\pi}}{\sqrt{s-1}}$

(C) $\dfrac{\sqrt{\pi}}{\sqrt{s+1}}$ (D) $\dfrac{\pi}{\sqrt{s+1}}$

028. A die is tossed thrice. A success is getting *1* or *6* on a toss. Then the mean of the number of success is

(A) $\dfrac{1}{2}$ (B) $\dfrac{1}{3}$

(C) $\dfrac{2}{3}$ (D) 1

029. A manufacturer knows that the condensers he makes contain on an average 1% of defectives. He packs them in boxes of 100. The probability that a box picked at random will contain 4 or more faulty condensers is

(A) $1 - \dfrac{8}{3e}$ (B) $1 - \dfrac{3}{8e}$

(C) $1 - \dfrac{4}{3e}$ (D) $1 - \dfrac{3}{4e}$

030. The order of convergence of Newton Raphson method is

(A) 0   (B) 1

(C) 2   (D) 3

M. Tech Textile Engg

031. Hygral expansion is measured by
   (A) FAST-3   (B) KES FB-4
   (C) FAST-4   (D) FAST-2

032. One ounce is equivalent to…………. grains.
   (A) 437.5   (B) 28.35
   (C) 16   (D) 427.5

033. On CLASSIMAT, the objectionable faults are
   (A) A4, B4, C4, D4
   (B) B3, B4, D3, D4
   (C) C3, C4, D3, D4
   (D) A4, B4, C3, C4, D3, D4

034. The weight in grams of one meter of cotton sliver normally lies between:
   (A) 0.5-1.0   (B) 1.0-2.0
   (C) 2.5-4.0   (D) 6.0-10.0

035. Twist multiplier (TM) i.e a better indicator of twist characteristics of yarn than TPI because
   (A) TM is directly proportional to target of twist angle
   (B) TM describes level of twist in yarn irrespective of linear density
   (C) TM is related to both the above characteristics
   (D) TM is related none of both above characteristics

036. In a scutcher the calendar roller pressure for polyester fibre is approximately
   (A) 3000 kg
   (B) 5000 kg
   (C) 4000 kg
   (D) 1000 kg

037. The hooks which are proportionally removed in roller drafting are
   (A) Trailing
   (B) Leading
   (C) V-Shape
   (D) Downs

038. The number of fibres of 1.5 denier in the cross-section of a 3 ktex sliver is
   (A) 20000   (B) 18000
   (C) 25000   (D) 22000

039. On a ring frame the spindle speed is 16000 rpm. If the yarn twist is 8 turns per cm and winding on circumference i.e 5cm, the traveler rpm would be
   (A) 15600
   (B) 15000
   (C) 16600
   (D) 14400

040. The yarn strength expressed in RKM i.e equivalent to

(A) Breaking load in grams

(B) Grams per tex

(C) CSP

(D) Grams per denier

041. The state which of the following spun yarn is strongest

(A) Carded ring yarn

(B) Combed ring yarn

(C) Rotor yarn

(D) Friction yarn

042. The delivery speed of a ring spinning producing 25s yarn is 15 m/min. If the spindle speed is 15000 rpm what will be TM (Twist multiplier) in the yarn

(A) 5.11   (B) 5.08

(C) 4.64   (D) 5.29

043. When TiO2 dispersion is mixed with Nylon before fibre extrusion then which one is not improved

(A) UV Protection

(B) Hydrophilicity

(C) Crystallinity

(D) Orientation

044. The pendent CH_3 group in irregularly in both site of molecular chain of polypropylene is called as

(A) Syndiotactic

(B) Isotactic

(C) Atactic

(D) Amorphous

045. Areal density of a woven cloth is 220g, measured thickness is 0.44 mm, its bulk density will be

(A) 456 kg/m^3

(B) 96.8 kg/m^3

(C) 500 kg/m^3

(D) 0.002 kg/m^3

046. The most preferred dye for cotton in bulk processing is –

(A) Vat dye

(B) Sulphur colour

(C) Reactives

(D) Acid Dye

047. Which properties of dyestuff is important for transfer printing

(A) Sublimation property

(B) Molecular size

(C) Solubility

(D) None of these

048. Poor wet rubbing fastness is often seen in –

(A) Reactives

(B) Vats

(C) Disperse dyes

(D) Sulphur colours

049. Enzyme Assisted Ultrasound Scouring of Raw Wool Fibres

(A) Protenease

(B) Cellulase

(C) Pectinase

(D) None of these

050. Degree of desizing is measured in terms of

(A) Protenease

(B) Cellulase

(C) Tegewa Rating

(D) None of these

051. which of the following Wash fastness methods are most commonly used for evaluation in bulk production –

(A) ISO 1 and ISO 2

(B) ISO 2 and ISO 3

(C) ISO 3 and ISO 4

(D) ISO 4 and ISO 5

052. Chlorotriazene based dyes are reacted with cellulose by –

(A) Nucleophilic addition

(B) Nucleophilic substitution

(C) Electrophilic addition

(D) Electrophilic substitution

053. Zero zero finish is required for

(A) Cotton   (B) Polyester

(C) Wool   (D) Nylon

054. Soil release finish is most suited for ____

(A) Polyester-cotton blend

(B) Pure cotton

(C) Wool-acrylic blend

(D) Linen

055. Which one is used as carrier in polyester dyeing

(A) Sodium Hydrosulphite

(B) NaOH

(C) Sodium silicate

(D) Tricholorobezene

056. Which property is improved by sanforizing finish

(A) Anti-shrink

(B) Soil release

(C) Flame retardant

(D) Waterproof

057. Which chemical act as flame retardant ?

(A) THPC

(B) DMDHU

(C) Silicones

(D) Potassium dichromate

058. Write the limiting oxygen index of wool fibre

(A) 20   (B) 25

(C) 21   (D) 30

059. Sodium Alginate is used in which printing process.

(A) Reactive printing

(B) azoic printing

(C) transfer printing

(D) pigment printing

060. Scrooping process is generally needed in case of-

(A) Polyester processing

(B) Wool processing

(C) silk processing

(D) Cotton processing

061. The essential constituent of PIGMENT printing is

(A) Hygroscoping agent

(B) Binder

(C) Dispersing agent

(D) Carrier

062. Which one is correct Ph range to dye cotton fabric with reactive dye

(A) 4-5

(B) 6.5-7.5

(C) 9-11

(D) 12-14

063. The monomers for the synthesis of Nylon 6.10 are

(A) Caprolactum and aipic acid

(B) Hexamethylenediamine and Sebacic acid

(C) Hexamethylenediamine and 2-pyrrolidone

(D) Hexamethylenediamine and PTA

064. The highest fastness in a dyed cotton fabric would be obtained if the dye-fibre bond is

(A) Ionic

(B) Covalent

(C) Hydrogen

(D) Van der Waal's force

065. Condensation polymerization is used to produce

(A) Polyester

(B) PP

(C) Polyacrylonitrile

(D) Polyethylene

066. Gel spinning technique is commercially used to produce filament yarn of
(A) Polypropylene
(B) Polyester
(C) Nylon 66
(D) Ultrahigh molecular weight polyethylene

067. In ISO standard the traveler number is defines as mass in grams of
(A) 10 traveler
(B) 100 traveler
(C) 500 traveler
(D) 1000 traveler

068. The incorrect statement amongst the following are
(A) Sisal is leaf fibre
(B) Density of polyester is higher than cotton
(C) Monoethylene Glycol (MEG) is one of the raw material of polyester fibre
(D) Spandex is an elastic fibre

069. In air-jet loom
(A) All the relay nozzles start jetting at the same time
(B) Each relay nozzle has separate jetting time in sequence
(C) Relay nozzles of a group start jetting at the same time
(D) Main and relay nozzles have same jetting time

070. Which of the following weaving systems can offer maximum fabric width?
(A) Air jet
(B) Water jet
(C) Automatic shuttle loom
(D) Rapier

071. For the product of high performance viscose fibre, the salt index should be
(A) Low
(B) High
(C) Moderate
(D) Does not matter

072. Polycondensation reaction typically takes place due to the presence of
(A) Four functional groups
(B) Three functional groups
(C) Two functional groups
(D) One functional groups

073. Increase in metering pumps revolution per minute will lead to (other parameters same)
(A) Increase in denier value
(B) Decrease in denier value
(C) No change in denier value
(D) Constant denier

074. where A is the cross-sectional area of the spinning line at any intermediate point, V the linear stream (fibre) velocity and ρ the density. Continuity equation will be

(A) $\sqrt{(AV)}\,\rho = $ constant

(B) $\frac{1}{2}(AV\,\rho) = $ constant

(C) $AV\sqrt{\rho} = $ constant

(D) $AV\,\rho = $ constant

075. Calculate the count of the weft in tex of a piece of cloth 20 metres long and has 25 picks per cm. The width of the cloth is 80 cms and the weft regain is 10%. The weight of the weft is 2.16 kg.

(A) 52   (B) 50

(C) 51   (D) 49

076. A knitted fabric with 30s combed yarn with 80 CPI and 60 WPI with 0.65 mm loop length is sourced for production process. Calculate the GSM of the fabric, if the dimensional shrinkage after knitting is 10%. Mention the GSM after knitting

(A) 104   (B) 106

(C) 102   (D) 100

077. ERM cleaner machine is quite similar to ………..machine in cleaning principle

(A) Hopper bale breaker

(B) Step cleaner

(C) Porcupine opener

(D) Carding

078. Which one is incorrect for bobbin leading system in speed frame

(A) The direction of roving on the bobbins provides stable outer layer

(B) The drive to the spindle is shortest hence it starts faster than the bobbins

(C) Bobbin surface speed remains higher than flyer surface speed

(D) Roving breakage rate remains higher in bobbin leading system than flyer leading at starting

079. For 4 end doubling % change in CV with respect to single end would be?

(A) 50% Increase

(B) 50% Decrease

(C) 100% Decrease

(D) No Any Change

080. A loom is running at a speed of 200 picks per minute. Picks per inch in cloth is 50. If production of that loom of one year is 36868.68 meter. Loom is running 24 hour every day than find the efficiency in %.

(A) 60

(B) 70

(C) 75

(D) 80

081. If the mass of warp sheet having warp yarn length 1200 yards and number of warp yarn in warp sheet are 3000 is 120 pounds. Calculate the English count of warp yarn.

(A) 37.8   (B) 33.5

(C) 32.6   (D) 35.7

082. A beam of 300kg contains sized yarn of 20% take up. Calculate the unsized yarn count if the sized yarn count is 45s.

(A) 54

(B) 50

(C) 58

(D) 48

083. In a drum driven winder

(A) Traverse ratio is constant

(B) Traverse ratio reduces with the increase in package diameter

(C) Angle of wind increases with the increase in package diameter

(D) Angle of wind reduces

084. The nep setting on an evenness tester which will give the highest nep count is

(A) +400%

(B) +280%

(C) +200%

(D) +140%

085. Orthogonal fabric can be produced by

(A) Knitting

(B) Three dimensional weaving

(C) Swivel Weaving

(D) Velvet weaving

086. Stelometer works on

(A) Constant rate of traverse

(B) Constant rate of elongation

(C) Constant rate of loading

(D) Constant rate of traverse and loading

087. Uster tensorapid instrument works on

(A) CRT principle

(B) CRE principle

(C) CRL principle

(D) On both CRT and CRL principle

088. ZnSO 4 in viscose spin bath acts as

(A) Coagulating agent

(B) Regenerating agent

(C) Compound forming agent

(D) Emulsifying agent

089. Fibre fineness can be determined by

(A) Gravimetric or dimensional measurement

(B) Air flow method

(C) Vibrating string method

(D) All above

090. Micronaire value can be expressed as

(A) mass in µgms of 1 inch of fibre (for cotton)

(B) mass in gms of 1000 meter (for cotton)

(C) mass in kg of 1000 meter (for cotton)

(D) mass in gms of 9000 meter (for cotton)

091. Togmeter is used

(A) to test the air permeability of fabric

(B) to test the length of fabric

(C) to test thermal conductivity of fabric

(D) to test the surface smoothness of fabric

092. Advanced Fibre Information System (AFIS) is used to test

(A) Card nep analysis

(B) Length analysis of comber and D/F

(C) Trash analysis

(D) All of the above

093. Typical cooling time for fine yarns required in melt spinning can be

(A) 2.0 sec

(B) 5.0 sec

(C) 0.05 sec

(D) 0.10 sec

094. Which one is incorrect about Dry spinning method of fibre manufacturing

(A) Mass transfer is not involved

(B) Requires solvent recovery process

(C) Cellulose acetate is produced by dry spinning method

(D) Circular cross section of the fibre is difficult to achieve

095. The incorrect statement amongst the following are

(A) Jute is multi-cellular fibre

(B) Density of polypropylene is higher than polyester

(C) Polyterephtjalic acid (PTA) is one of the raw material of polyester fibre

(D) Spandex is a elastic fibre

096. Thermogravimetric analysis (TGA) is used to find out

(A) Glass transition temperature

(B) Density

(C) Thermal stability

(D) Orientation of molecular chains

097. Density gradient coloumn is used to calculate …………indirectly apart from density measurement

(A) Surface irregularity

(B) Heat of fusion

(C) Chemical resistance

(D) Crystallinity

098. Sueding is the process, which performs when ………….

(A) Fabric is abraded against emerising or emery fillet or roller

(B) Fabric is abraded against wires

(C) Fabric is abraded against edged surfaces

(D) All of the above

099. Spinning tension is independent of

(A) Treveller mass

(B) Fibre fineness

(C) Ring diameter

(D) Spindle speed

100. Plain loom weft insertion speed is mainly limited by

(A) The Loom Eccentricity

(B) The Mass of the Sley

(C) The Width of the Loom

(D) The shuttle mass carrying and the shuttle checking System