



PUNJAB TECHNICAL UNIVERSITY JALANDHAR

Max. Marks: 90

Time: 90 Mins.

Entrance Test for Enrollment in Ph.D. Programme

Important Instructions

- Fill all the information in various columns, in capital letters, with blue/black ball point pen.
- Use of calculators is not allowed. Use Blue/Black ball point pen for attempting the questions.
- All questions are compulsory. No negative marking for wrong answers.
- To attempt a question, make a tick mark (✓) at the right option/answer.
- Each question has only one right answer.
- Questions attempted with two or more options/answers will not be evaluated.

Stream (Engg./Arch./Pharm./Mgmt./App.Sci./Life Sci.)

Engineering

Discipline

Textile Engineering

Name

Father's Name

Roll No.

Date: **15-01-2011**

Signature of Candidate

Signature of Invigilator

Q. 1 The term 'Research' more exactly implies

- (a) Psychological analysis and working on that
- (b) Simply working on a new area
- (c) Study of some new area
- (d) Scientific and systemic working

Q. 6 The object of 'Research methodology' is

- (a) To develop methods to carry out new works
- (b) To develop techniques to carry out new works
- (c) To arrive at a final and new concept
- (d) To device ways for systematic approach

Q. 2 Research starts with the help of

- (a) Defining its technical meaning
- (b) Defining an important problem
- (c) Analyzing an important area
- (d) Studying day to day problems

Q. 7 The first step of research is

- (a) To survey literature in the proposed area
- (b) To formulate the research problem
- (c) To develop research design
- (d) To start collecting data

Q.3 Research work to achieve familiarity with a phenomenon is termed as

- (a) Descriptive research
- (b) Diagnostic research
- (c) Formulative research
- (d) Hypothesis-testing research

Q. 8 The very last part of research is

- (a) To prepare comments on the area of work
- (b) To interpret the work done
- (c) To find facts occurred during research
- (d) To consolidate the findings in brief

Q. 4 Pure or basic research indicates

- (a) Doing new social works
- (b) Gathering knowledge for sake of knowledge
- (c) Developing new technologies
- (d) Designing new formulas

Q. 9 Designing of research work is based on

- (a) The problem requiring research
- (b) Literature survey
- (c) Experimental work
- (d) Conducting experiments

Q. 5 Fundamental research implies

- (a) Formulation of theory
- (b) Formulation of policy
- (c) Conducting surveys
- (d) Assessing quality of something

Q. 10 The conclusion of thesis report comes under

- (a) Main text
- (b) Preliminary reports
- (c) End report
- (d) None of the above

- Q. 11 A good quality research starts with
- (a) A good report to be prepared in a new area
 - (b) A genuine problem to be solved
 - (c) An idea of getting Ph D degree
 - (d) An approach to do something new
- Q. 12 Doing quality research primarily requires
- (a) Extensive infra-structural facility
 - (b) Extensive knowledge in the area of research
 - (c) Extensive work planning
 - (d) Extensive study in the proposed area
- Q. 13 Research problem can be defined as
- (a) A typical problem requiring to be worked out
 - (b) A problem requiring extensive literature survey
 - (c) A problem requiring machines and materials
 - (d) A problem requires to be addressed
- Q. 14 To address research problem, it is a must to
- (a) Do extensive literature survey
 - (b) Prepare a work plan
 - (c) Develop research methodology
 - (d) Arrange machines and raw materials first
- Q. 15 Graphical presentation of data along a two-dimensional plane in a research work is mentioned in the report as
- (a) Graph
 - (b) Data
 - (c) Citation
 - (d) Figure
- Q. 16 Literature survey assists to
- (a) Develop an effective research idea
 - (b) Develop thorough know-how in that area
 - (c) Make document of research work
 - (d) Generates craze towards research work
- Q. 17 A 'control' in a research work is referred
- (a) To the work to produce specimens
 - (b) To restrain experimental conditions
 - (c) To fix variables for research specimens
 - (d) To set instrumental conditions
- Q. 18 Independent variables in a research work affecting dependent variables are termed as
- (a) Non-linear variables
 - (b) Linear variables
 - (c) Extraneous variables
 - (d) Control variables
- Q. 19 The 'Principal of replication' is one of the principles of
- (a) Experimental Design
 - (b) Literature survey
 - (c) Interpretation of data
 - (d) Abstract
- Q. 20 Which one among the following fibres possesses moisture regain around 12%
- (a) Silk
 - (b) Cotton
 - (c) Wool
 - (d) Viscose
- Q. 21 A ring spun cotton yarn of 30^s is equivalent to
- (a) 190.68 tex
 - (b) 19.683 tex
 - (c) 1.96 tex
 - (d) 196.68 tex
- Q. 22 To evaluate tensile strength of a fabric specimen, the time of test should be restricted to
- (a) 18±3 s
 - (b) 15±3 s
 - (c) 20±3 s
 - (d) 20±2 s
- Q.23 A Tensile testing machine based on which of the following principles is preferably used to test breaking elongation of a fabric?
- (a) Constant Rate of Traverse
 - (b) Constant Rate of Extension
 - (c) Constant Rate of Loading
 - (d) None of the above
- Q. 24 Moisture regain and moisture content of a specimen are related as
- (a) Moisture regain > Moisture content
 - (b) Moisture content > Moisture regain
 - (c) Moisture regain = Moisture content
 - (d) Moisture content ≥ Moisture regain
- Q. 25 Tearing strength of a specimen is always
- (a) Less than its breaking strength
 - (b) More than its breaking strength
 - (c) Equal to its breaking strength
 - (d) No relation exists between the two

- Q. 26 Air permeability is expressed in
- (a) cc/cm/s
 - (b) cc/cm/s²
 - (c) cc/cm²/s
 - (d) cc/cm²/s²
- Q. 27 Which unit is most suitable to express linear density of polyester filament?
- (a) Tex
 - (b) Worsted count
 - (c) English count
 - (d) Denier
- Q. 28 One yard cotton yarn weighing 0.0135 gms has the yarn numbering of
- (a) 30^s
 - (b) 40^s
 - (c) 35^s
 - (d) 20^s
- Q. 29 Moisture regain of a 67/33 polyester-cotton yarn is exactly
- (a) 2.673
 - (b) 2.749
 - (c) 2.743
 - (d) 2.793
- Q. 30 Cover factor of a plain fabric is
- (a) > 28
 - (b) < 28
 - (c) =28
 - (d) ≥ 28
- Q. 31 Abrasion resistance of a plain woven soft fabric will be in general
- (a) High
 - (b) Moderate
 - (c) Low
 - (d) Unpredictable
- Q. 32 Air-flow method is used to evaluate
- (a) Yarn fineness
 - (b) Fibre fineness
 - (c) Fibre crystallinity
 - (d) Yarn homogeneity
- Q. 33 Twist factor defines the
- (a) Angle of twist in a yarn
 - (b) Optimum twist in a yarn
 - (c) Extent of twist in a yarn
 - (d) False twist in a yarn
- Q. 34 Which one of the following fibres is elastomeric in nature?
- (a) Polyester
 - (b) Kevlar
 - (c) Viscose
 - (d) Nylon
- Q. 35 Which type of polymer Polypropylene is.
- (a) Stereo-regular polymer
 - (b) Block polymer
 - (c) Step polymer
 - (d) Co-polymer
- Q.36 Which one among the following polymers possesses highest modulus?
- (a) Polyester
 - (b) Kevlar
 - (c) Viscose
 - (d) Nylon
- Q.37 Polyacrylonitrile actually is a
- (a) Block polymer
 - (b) Living polymer
 - (c) Step polymer
 - (d) Co-polymer
- Q. 38 The example of thermo-setting polymer is
- (a) Polyester
 - (b) Nylon
 - (c) Polyacrylonitrile
 - (d) Polyethylene
- Q.39 The 'use temperature' of a textile polymer is
- (a) Lesser to its T_g
 - (b) Higher than its T_g
 - (c) Equal to its T_g
 - (d) No relation with its T_g
- Q. 40 Polyacrylonitrile fibre is soluble in
- (a) Dimethylformamide
 - (b) Phenol
 - (c) m-Cresol
 - (d) Carbon tetrachloride
- Q. 41 End group analysis is used to evaluate
- (a) Weight average molecular weight
 - (b) Number average molecular weight
 - (c) Viscosity average molecular weight
 - (d) Sedimentation average molecular weight

- Q. 42 Reactants used to synthesize nylon 6 are
- (a) Hexamethylene diamine and Adipic acid
 - (b) Dimethyl terephthalate and ethylene glycol
 - (c) Hexaphenylene diamine and adipic acid
 - (d) Caprolactum and water
- Q. 43 'Transesterification' is related to synthesis of
- (a) Polyester
 - (b) Nylon 6
 - (c) Polyacrylonitrile
 - (d) Cellulose acetate
- Q. 44 Formation of Barré is most typically related to
- (a) Polyester
 - (b) Nylon 66
 - (c) Polyacrylonitrile
 - (d) Nylon 6
- Q. 45 X-ray diffraction technique is used to study
- (a) Polymer solubility
 - (b) Polymer reactivity
 - (c) Polymer crystallinity
 - (d) Degree of polymerization
- Q. 46 Canopy of Parachutes are invariably made of
- (a) Nylon
 - (b) Kevlar
 - (c) Polyester
 - (d) PAN
- Q. 47 Zigler –Natta catalyst is used to synthesize
- (a) Viscose
 - (b) Cellulose acetate
 - (c) Polypropylene
 - (d) Polyester
- Q. 48 Carding of cotton fibre is actually meant for
- (a) Parallelization of fibres
 - (b) Opening of fibres
 - (c) Removal of neps
 - (d) Removal of hooks
- Q. 49 Ten identical slivers were doubled and drafted to deliver a final sliver possessing same count of starting individual slivers. The total draft applied in the draw-frame was
- (a) 10
 - (b) 12
 - (c) 8
 - (d) 15
- Q. 50 Rotor spun yarn is preferably used in
- (a) Voile
 - (b) Georgette
 - (c) Denim
 - (d) Swimming costumes
- Q. 51 Roller setting in draw-frame is based on which characteristics of fibre
- (a) Staple length
 - (b) Average length
 - (c) Span length
 - (d) Effective length
- Q. 52 The doffer has a surface speed around
- (a) 150 m/min
 - (b) 300 m/min
 - (c) 200 m/min
 - (d) 225 m/min
- Q.53 TPI of carded yarn has following relationship with that of combed yarn of same count
- (a) TPI of carded yarn = TPI of combed yarn
 - (b) TPI of carded yarn >TPI of combed yarn
 - (c) TPI of carded yarn < TPI of combed yarn
 - (d) None of the above
- Q. 54 The draft required to convert a carded sliver directly to a ring spun yarn is around
- (a) 200-300
 - (b) 100-200
 - (c) 300-500
 - (d) 500-600
- Q.55 The TPM of a cotton roving with flyer rpm of 'x' and delivery speed of 'y' is
- (a) x/y
 - (b) xy
 - (c) y/x
 - (d) x²/y
- Q. 56 A lappet is used in
- (a) Carding
 - (b) Draw frame
 - (c) Combing
 - (d) Ring frame
- Q. 57 Rate of winding in a ring frame is equal to
- (a) Spindle speed + Traveller's speed
 - (b) Spindle speed – Traveller's speed
 - (c) Traveller's speed + Spindle speed
 - (d) Traveller's speed - Spindle speed

- Q. 58 Insertion of twist to the yarn in a ring frame is performed by
- (a) Spindle
 - (b) Lappet
 - (c) Balloon breaker
 - (d) Traveller
- Q.59 The count of cotton yarn produced by Electrostatic spinning system lies in range of
- (a) 10-20 Ne
 - (b) 20-30Ne
 - (c) 20-40 Ne
 - (d) 7-15 Ne
- Q. 60 The strength of friction spun yarn is
- (a) More than that of rotor spun yarn
 - (b) Less than that of rotor spun yarn
 - (c) Same as that of rotor spun yarn
 - (d) No apparent relation exists
- Q.61 Murata jet spinner is most suitable for spinning of which of the following types of yarns
- (a) Jute
 - (b) Coarse cotton
 - (c) Synthetic fibres and blended
 - (d) All fibres as well as all types
- Q. 62 In which weave, few of ends change side
- (a) Huck-a-back weave
 - (b) Terry weave
 - (c) Check weave
 - (d) Leno weave
- Q. 63 Maximum number of healds those tappet shedding can control is
- (a) 4
 - (b) 8
 - (c) 2
 - (d) 6
- Q. 64 Number of healds required to weave a 10×10 huck a back weave is
- (a) 4
 - (b) 6
 - (c) 10
 - (d) 2
- Q. 65 Ordinary towels are generally woven in
- (a) Jacquard
 - (b) Dobby
 - (c) Terry loom
 - (d) Conventional loom
- Q.66 A plain fabric with periodic three different coloured picks is manufactured using a
- (a) Dobby
 - (b) Air-jet loom
 - (c) Jacquard
 - (d) drop box motion
- Q.67 A 100% polyester fabric is woven easily with
- (a) Air-jet loom
 - (b) Water-jet loom
 - (c) Sulzer loom
 - (d) Rapiet loom
- Q. 68 The pick insertion rate of a double-lift double-cylinder jacquard per minute is around
- (a) 150
 - (b) 300
 - (c) 400
 - (d) 200
- Q.69 A woven cotton fabric of 30 ends and picks/cm both, warp and weft both of 30 tex, crimp-10% in both warp and weft has a GSM of
- (a) 198
 - (b) 108
 - (c) 189
 - (d) 190
- Q.70 'Lifting' in weaving is the process of
- (a) Drawing ends through heald eyes
 - (b) Drawing ends through reed
 - (c) Control over movement of ends
 - (d) Control over movement of picks
- Q.71 Warp sheet is sized to counteract
- (a) Irregular movement of ends during shedding
 - (b) Reed breakage
 - (c) Shuttle malfunctioning
 - (d) Heald staggering

- Q. 72 A single lift jacquard produces
- (a) Open shedding
 - (b) Cross shedding
 - (c) Bottom closed shedding
 - (d) Centre closed shedding
- Q. 73 In a double lift jacquard, the shed opens at
- (a) 240°
 - (b) 180°
 - (c) 210°
 - (d) 360°
- Q. 74 In a warp backed fabric, the back ends are stitched by
- (a) Lifting back end under pick passing at face
 - (b) Lifting back end under pick passing at back
 - (c) Dropping back end over pick passing at back
 - (d) Lifting back end over pick passing at back
- Q. 75 'Doup' is frequently used in producing
- (a) Terry towels
 - (b) Double cloths
 - (c) Gauze and leno weaves
 - (d) Stripes and checks
- Q. 76 In resist printing of cotton fabric,
- (a) The fabric is dyed followed by printing
 - (b) The fabric is directly printed and not dyed at all
 - (c) The fabric is printed followed by dyeing
 - (d) The fabric is only dyed and not printed at all
- Q.77 'Diazotisation' step is involved in dyeing of cotton with
- (a) Vat colours
 - (b) Reactive colours
 - (c) Sulphur colours
 - (d) Insoluble azoic colours
- Q.78 Denim is invariably dyed with indigo
- (a) To achieve good colour fastness
 - (b) To develop attractive blue shade
 - (c) To facilitate wash-down effect
 - (d) To increase durability of the fabric
- Q.79 In which of the dyeing processes, sulphuric acid is used
- (a) Solubilised vat dyes
 - (b) Sulphur dyes
 - (c) Vat dyes
 - (d) Disperse dyes
- Q.80 'Over-dyeing' is related with dyeing of
- (a) Cotton
 - (b) Wool
 - (c) Polyester
 - (d) Rayon
- Q.81 Based on dyeing point of view, polyester-cotton blend is a
- (a) BA blend
 - (b) AD blend
 - (c) AB blend
 - (d) DA blend
- Q. 82 'Ring dyeing' is associated in dyeing of cotton with
- (a) Indigo
 - (b) Reactive dye
 - (c) Aniline black
 - (d) Phthalocyanine dyes
- Q. 83 In what way, increase in temperature affects a cold brand reactive dyeing process
- (a) Dye uptake increases
 - (b) Dye uptake stops
 - (c) No change in dye uptake
 - (d) Hydrolysis of dye increases
- Q. 84 'Iso-electric point' is related in dyeing of
- (a) Cotton with reactive dye
 - (b) Polyacrylonitrile with basic dye
 - (c) Nylon with acid dye
 - (d) Polyester with disperse dye
- Q. 85 Application of formaldehyde in naphthol bath
- (a) Reduces stability of naphtholated fabric
 - (b) Increases stability of solubilised naphthol
 - (c) Increases coupling reaction
 - (d) Increases affinity of naphthol for cotton

Q. 86 Addition of excess dispersing agent in disperse dye bath causes

- (a) Increase in dye uptake
- (b) Increase in affinity of dye for fibre
- (c) Reduction in dye uptake
- (d) Dyed polyester with poor wash fastness

Q. 87 Citric acid is used invariably in

- (a) Vat dyeing
- (b) Transfer printing
- (c) Discharge printing
- (d) Resist printing

Q. 88 Sanforising is imparted to

- (a) Woven cotton fabrics
- (b) Woven polyester fabrics
- (c) Knitted woollen garments
- (d) Knitted sportswears and leisurewears

Q. 89 Decatising is a process imparted to develop

- (a) Structural stability
- (b) Softness
- (c) Water repellency
- (d) Flame retardancy

Q. 90 Copper number test is used to assess

- (a) Degree of mercerization of cotton
- (b) Degree of stabilization of cotton in sanforising
- (c) Extent of damage of cotton in scouring
- (d) Degree of crease recovery of cotton