



Fax  
By Messenger

**GOVERNOR'S SECRETARIAT, BIHAR**  
RAJ BHAVAN, PATNA-800022

Letter No. PU-28/2013-  
From

GS(I),

Dated

U. K. Choubey  
Joint Secretary

To

The Vice Chancellor  
Patna University  
Patna.

Sub:- Regarding approval of the amendment in the existing examination Regulations of the Self-financing course, namely, P.G. Diploma in Actuarial Science.

Sir,

I am directed to invite a reference to the University's letter no Acad/2039 dated 21.12.2012 on the subject noted above and to inform that the Hon'ble Chancellor, after due consideration of the proposal of the University, advice of the Advisory Committee and in exercise of powers vested in him under Section 39(2) (ii-proviso) of the Patna University Act, 1976, as amended up to date, has been pleased to approve the following amendment in the existing examination Regulations of the P.G. Diploma Course in Actuarial Science, subject to the condition that the University will get the amendment in the Regulations, approved by the Senate in its next meeting:-

**The clause 7(1) will be added after clause no. 7 of the existing Regulations of P.G. Diploma Course in Actuarial Science.**

**7(1) "Pass marks will be 40% of the aggregate. However, no pass marks be fixed for passing in individual papers."**

Yours faithfully

Sd/-

(U.K. Choubey)  
Joint Secretary  
Dated

Memo No. PU-28/2013-

GS(I),

Copy forwarded to Principal Secretary, Education Department, Govt. of Bihar for information and necessary action.

Sd/-

(U.K. Choubey)  
Joint Secretary  
Dated

Memo No. PU-28/2013- 3030 GS(I),

Copy alongwith copy of letter no. PU-33/2007-2405/GS(I), dated 18.07.2007 and its enclosures forwarded to Scientist-D, In-charge Computer Cell, Raj Bhavan, Patna for uploading on the website of Raj Bhavan/Guard File of Regulations and Ordinance of Patna University, Patna.

(U.K. Choubey)  
Joint Secretary

**GOVERNOR'S SECRETARIAT, BIHAR**

Letter No-PU-33/2007-2405 /GS(I)

Dated 18-07-2007

From,  
M. P Srivastava  
Officer on Special Duty(Judl.)

To,  
The Vice Chancellor,  
Patna University  
Patna

Sub: Approval of Regulation and Ordinance for P.G. Diploma in Actuarial Science under Self Financing scheme.

Sirl

I am directed to invite a reference to the University's letter No. Acad /1392 dated 19.6.2007 on the above subject and to inform you that the Hon'ble Chancellor after due consideration of the proposal of the University, has been pleased to approve Regulation and Admission Ordinance of P.G.Diploma in Actuarial Science under Self Financing Scheme of Patna University (Copy enclosed)in exercise of powers vested in him under section 39(2)(ii)and 38(4) of the Patna University Act. 1976 as amended up to date, subject to the condition that the University will get the Regulation and Admission Ordinance of P.G.Diploma in Actuarial Science under self Financing Scheme approved by the Senate in its next meeting.

Yours faithfully,

sd/-

(M. P. Srivastava)

Officer on Special Duty(Judl.)

Encl:As above

Memo No.PU-33/2007 - 2405

/GS(I),

Dated 18-07-2007

Copy alongwith a copy of the approved Regulation and Ordinance forwarded to the Principal Secretary, Deptt.of Higher Education, Govt,of Bihar, Patna for information .

*[Handwritten signature]*  
18/7/07

Officer on Special Duty (Judl.)

07c

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**REGULATION FOR EXAMINATION**

OF

**P.G. Diploma in Actuarial Sciences**

1. Course Duration : 12 Months
2. There will be only one final examination conducted by the University.
3. The course will be in the Faculty of Science.
4. The result will be on the basis of performance of the candidates in Theory Papers, Practical, Project & Seminar.
5. The candidate will have to visit an industry assigned by the Deptt. at his own cost and prepare the project report.
6. Project and Seminar both will be of 50 marks each.
7. The curriculum will be revised subject to change in the curriculum of Actuarial Society of India.
8. **Curriculum**  
There will be 9 papers each of 100 marks.

**Paper I : Financial and Actuarial Mathematics (100 Marks)**

Cash Flow, Simple and Compound interest and their applications, Discount, Real and Money rates of Interest, Discounting and accumulating, annuities, deferred and increasing annuities, equations of value, loan schedules, Project appraisal, investments.

Contracts – Arbitrage and Forward. Term structure of interest rates, stochastic interest rate models.

**Paper – II Financial Reporting (100 marks) :**

Finance of a joint stock company, Personal and corporate taxation, Principal forms of financial instrument, Capital-structure and Dividend policy, cost of capital. Financial reporting of accounts, Financial statements.

राज्यपाल के विशेष कार्य पदाधिकारी (न्याय)  
राजमन्, १८१

10/6/2018

**Paper III : Mathematical statistics (100 marks)**

Frequency Distribution : Measures of central tendency, dispersing, moments, skewness and kurtosis. Correlation and regression analysis. Analysis of variance. Sample space, event, probability as a set function addition rule, conditional probability, Bayes Theorem, Random Variable, Discrete and continuous probability distributions, marginal and conditional distributions. Expectation, moment generating function, characteristic function, probability generating function, cumulant generating function, conditional expectation.

Probabilistic Inequalities : Chebushev's inequality kolmogorov inequality.

Convergence : Weak and strong. Law of large numbers, central limit theorem

Statistical Inference : Point and Interval Estimation, Testing of Hypothesis

Discrete Distributions : Uniform, Bernoulli, Binomial, Poisson, geometric, negative binomial, hyper geometric distributions.

Continuous Distribution : Uniform, gamma, exponential, Beta, Normal, Lognormal, chi-square, t-distribution, F-distribution, compound distributions.

**Paper IV : Stochastic Models (100 marks)**

Principles of actuarial modeling, stochastic process, markov chain, markov process, survival models, life distributions and their estimation, M.L. estimators for transition intensities, two state markov model, General Markov Model, Markov Jump Process, Cox -Regression model, Binomial and Poisson model, Exposure to risk, graduation and statistical tests, Methods of Graduation.

**Paper V : Insurance (100 marks)**

Life assurance contracts, life annuity contracts, life table, Evaluation of assurances and annuities, Net premiums and Provisions, Variable benefits and with-profit policies, gross premiums and provisions, Simple annuities and assurances involving two lives, Contingent and reversionary benefits, profit testing, determining provisions using profit testing, competing risks, multiple decrement tables, Pension funds, Mortality, Selection and standardization.

**Paper VI : Decision and Forecasting theory (100 marks).**

Decision theory, Bayesian statistics, Loss distributions, Reinsurance, Risk models, Ruin theory, Credibility theory, Experience rating, Run of triangles, Generalized linear models, Time series, ARMA, ARMA and ARIMA Time Series, Simulation.

**Paper VII Financial Economics :**

Asset pricing and portfolio selection models, stochastic dominance to portfolio selection, problems. Investment risk, mean variance portfolio theory, Models of Asset Returns, Capital Asset pricing model, Stochastic Asset Model, Black – scholes analysis and arbitrage free pricing.

**Paper – 8 : Seminar and Project (100 marks each of 50 marks).**

**Paper – 9 : Practical (100 Marks)**

V.P.G.H. 45th  
19.6.17

राज्यपाल के विशेष कार्य पदाधिकारी (न्याय)  
राजमवन, पटना

**FINANCE FOR ADMISSION OF STUDENTS OF P.G. DIPLOMA IN ACTUARIAL SCIENCE AT PATNA UNIVERSITY**

1. The selection of candidates for admission to the above course shall be made on the basis of written entrance test followed by an interview conducted by the University.
2. Eligibility
  - 2.1 A graduate having Hons. degree in Statistics/Mathematics.  
or  
A candidate having Hons. in any subject but mathematics or statistics at the intermediate level.  
A graduate having hons in any subject but statistics and or mathematics as subsidiary paper.  
A graduate having statistics or mathematics as a general paper.
- The fee for appearing at the entrance test shall be Rs. 500/- for general and Rs. 300/- for Sc/St candidate.
- Admission shall be made specifically in order of merit i.e. percentage of marks secured by the candidate at the entrance test and interview held for the purpose.
6. Reservation policy will be followed as applicable in the Patna University.
- 7 No candidate shall be permitted to be registered as a student in any other course leading to diploma or degree during the same academic year.
- 8 The course will be of one year duration.
- 9 This course will run under the Self Financing Scheme. In one year the course fee will be Rs. 15000/-. The details can be worked out later on.
- 10 The basic aim of this course will be to provide sufficient infrastructure to candidates preparing for the ASI papers.
- 11 The curriculum of the course will be modified as an when the curriculum of the ASI is modified.
- 14 Like other vocational courses the faculty will be hired if needed and an appropriate honorarium will be paid.
- 15 The candidate shall have to visit the company and a project report will have to be submitted under the supervision of a teacher. It will be a part of the examination.

Vibhish  
12.6.17

राज्यपाल के विशेष कार्य सहायक (न्याय)  
राजमन्, पटना

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DRAFT CURRICULUM OF PROPOSED P.G. DIPLOMA IN ACTUARIAL SCIENCE

Paper I	Probability & Probability Distribution
Paper II	Financial & Actuarial Mathematics
Paper III	Stochastic Modeling
Paper IV	Survival & Risk Models
Paper V	Corporate Financial Management
Paper VI	Elective
Paper VII	Project + Seminar
Paper VIII	Practical

Details will be submitted later on

VIBRANT  
19.6.07

राज्यपाल के विशेष कार्य अधिकारी (न्याय)  
राजमवन, पटना